The RUBBER AGE

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Late News of the Rubber Industry

Rubber Company Stocks Crash In Security Market Collapse

HUNDREDS of millions of dollars were cut from the market value of rubber manufacturing company securities during the selling panic that gripped Wall Street and the other exchanges of the country in the last ten days of October. Between October 21 and October 30, practically every listed rubber company stock issue sank from 4 to 74 points, and, while some recovery has since been made, few are selling at more than a fraction of their 1929 peak levels.

At their lowest levels, some of the dividend-paying common stocks offered yields of from 8 to 10 per cent, while others were selling at a price equal to only four or five times their annual earnings. The total decline of all rubber company issues from their highest levels for the year amounted to well over a billion dollars in market valuation.

The ten-day declines of ten of the leading rubber company common stocks and the net amount of their drops from 1929 high levels are shown below:

	Oct. 21 Closing	*Oct. 29-30 Low*	*Decline*	*Decl. from y'r's high*
Firestone	244	170	74	139
Fisk	6¾	3½	3¼	16⅝
Goodrich	65	43	22	62¾
Goodyear	96⅞	60	36⅞	94½
Kelly-Springfield	7½	4	3½	20
Lee	9¾	5	4¾	20
Miller	10¾	5⅛	5⅝	23⅛
Mohawk	20	15	5	51
Seiberling	24	15	9	50
United States	50½	15	35½	50

United States Rubber Company Is Now Operating Profitably

THAT the activities of the United States Rubber Company have taken a definite turn for the better was indicated by F. B. Davis, Jr., president and chairman of the board, upon his return last month from a business trip to Europe. "The United States Rubber Company," he said, "is beginning to find its stride in the direction of successful and profitable operation. We have outlined a policy of consolidation of various units of our activities, which when completed, will effect considerable economies all along the line, and add materially to the earning power of the company.

"These changes are now beginning to be put into effect with the recent closing down of the company's Hartford plant. Sales of United States Rubber products generally are very satisfactory, both here and abroad, and are running ahead of 1928.

"The company so far this year has shown a satisfactory improvement in earnings, and whatever hopes we may entertain for the full year's results largely depend on what the company's income was for September and on the current month of October. We are optimistic, but not sure of the results." On the question of preferred dividends, Mr. Davis said that the resumption of such payments would not be considered for at least another year.

Asked whether the company will be in a position to refund advantageously its $18,000,000 7½ per cent notes falling due next fall, he stated, "We are working upon this problem now, but it is too early to predict the ways and means to provide for their payment."

Regarding the products of the company's new fibre products division, Mr. Davis said that their use was not confined to the treatment of paper, but was used in other fields as well, and that this employment of liquid latex products should be an increasing contributing factor to the company's earning power.

Raybestos-Manhattan Earnings Figured at $4,700,000 for 1929

FOR the third quarter of 1929, Raybestos-Manhattan, Inc., reports net earnings of approximately $1,300,000, after all deductions and taxes, equivalent to $1.93 a share on the 677,012 shares outstanding. This compares with earnings of $1,151,000 in the previous three months, equal to $1.70 a share, and to earnings of $947,530 in the fifirst quarter of the year, equal to $1.40 a share.

Net income of the company for the first nine months of 1929 was $3,398,530, or $5.02 a share, as compared with consolidated earnings by the company's present units of $2,465,585, or $3.64 a share on the present share basis, during the full year of 1928. Production of the company's factories is reported as sold out into January, and interests close to the company are understood to be confident that earnings for the entire year of 1929 will equal at least $4,700,000, or roughly $7 a share on the outstanding common stock.

No dividend basis has as yet been fixed for the stock of Raybestos-Manhattan, Inc., which was formed as the result of a merger of the Raybestos Company, the Manhattan

Rubber Manufacturing Company and the United States Asbestos Company. It is generally believed, however, in view of the previous rates of payment of the company's units and the current condition and earnings, that a $3 annual rate will be established in the near future.

October Rubber Consumption Is Estimated at 34,500 Tons

BASED on current operations at leading tire manufacturing centres in the country, crude rubber consumption during October totaled approximately 34,500 tons, it was estimated by members of the Rubber Exchange of New York in a release by that body on October 24. This will be approximately the same as the September rate when consumption amounted to 34,363 tons, and is in line with the prediction by THE RUBBER AGE that consumption for the last three months of 1929 will be between 102,000 and 103,000 tons.

For the first ten months of 1929, American rubber consumption would, therefore, have reached the figure of 416,864 tons, which is 51,736 tons more than manufacturers consumed during the same time in 1928, and 98,406 tons more than consumption for the corresponding period of 1927. Domestic consumption for the first ten months of 1928 was 365,488 tons and for the same period in 1927 was 318,458 tons, these figures being obtained from the monthly and quarterly reports of the Rubber Manufacturers Association.

Consumption of crude rubber in the United States during October last year amounted to 40,857 tons, and during that month two years ago, 26,790 tons.

Dutch Rubber Producers Propose Central Selling

MEETING on October 22 at Amsterdam, the Dutch Committee for the Protection of Rubber Producers' Interests formally approved a proposal to form a central selling association which would control an annual reserve of 45,000 tons of crude rubber. According to news dispatches, the Dutch producers present represented a production of 42,000 tons annually, while those who declared themselves ready to accept the committee's proposal in principle represented only about 30,000 tons.

In view of the fact that representatives of only 46 per cent of the total annual purely Dutch production voted in favor of the plan, Chairman Sanders announced that the result was not sufficient to secure British co-operation, and J. N. Burger, who proposed the plan, is said to be sailing to the Dutch East Indies to discuss the proposals with producers who were not represented at the meeting.

Dutch rubber growers and other members of the trade seemed favorably impressed with the scheme, but British brokers were doubtful of its effect after it was announced. Stanley F. Ward & Company, London brokers, commented on the withholding of 45,000 tons of crude rubber by remarking, "The American pool, always in a position to utilize rubber without throwing it on the market again, failed to stabilize prices with a holding of probably 150,000 tons out of a crop of 700,000 tons. Is it conceivable that much less organized and much more flimsy tinkering with the laws of supply and demand will produce any definite result on a probable crop of 850,000 tons?"

The Dutch proposal follows American and British discussions of price stabilization plans. On October 19, newspaper reports stated that two proposals made jointly by "all of the largest American tire manufacturers" had been rejected by British and Dutch growers of rubber. The first of these proposals was for a contract for the delivery of rubber over a period of five years at a price of 1s per pound, and the second was for a similar five-year contract for rubber between a minimum price of 11d and a maximum price of 15d. On September 24, a delegation of American manufacturers conferred with a group of British producers regarding a price-fixing plan. American interests were represented by F. A. Seiberling, president of the Rubber Manufacturers Association, Walter B. Mahony, Edgar B. Davis and F. B. Davis, Jr., while British interests were represented by G. H. Masefield, chairman of the Rubber Growers' Association, P. W. Burgess, H. Eric Miller, W. M. Skinner, and Sir Stanley Bois, all former chairmen of the association, the Earl of Denbeigh, and Von Leeven vom Boomkemp, head of the largest Dutch plantation interests.

Goodyear Starts Navy Airship; Transoceanic Companies Formed

ACTUAL construction work on the world's largest dirigible was begun by the Goodyear-Zeppelin Corporation at Akron on November 7, following "ring laying" ceremonies which were analagous to the laying of the keel of a surface vessel. A formal program was arranged for the occasion with several prominent speakers, among whom were Postmaster General Walter F. Brown, Rear Admiral W. A. Moffett, Assistant Secretary of the Navy Ernest Lee Jancke, Assistant Secretary of Commerce Clarence Young, Commander Garland Fulton, Brigadier General B. D. Foulois, Assistant Postmaster General W. Irving Glover, Governor Myers Y. Cooper of Ohio, Governor Fred W. Green of Michigan, Senator Hiram Bingham of Connecticut, president of the National Aeronautical Association; P. W. Litchfield, president of the Goodyear-Zeppelin Corporation; Dr. Karl Arnstein, chief engineer of the company, and many others.

The ceremony of the laying of the master ring started with the opening of the gigantic orange-peel doors of the huge hangar to the blare of band music. At that time Assistant Secretary Jancke, Rear Admiral Moffett, President Litchfield and Dr. Arnstein marched to a platform built near the top of the centre of the hangar and drove a gold pin into the highest point on the ring of the new airship. The ZRS-4, as the dirigible will be known, will be inflated with 6,500,000 cubic feet of helium gas when completed and will have a cruising radius of 2,500 miles and a top speed of 84 miles an hour. It will be ready for flight trials by the United States Navy in July, 1931, and the second huge dirigible for the Navy will be completed by the end of 1932.

Following the completion of the two Navy airships, it is understood that the Goodyear-Zeppelin Corporation will build several equally large dirigibles for commercial trans-Atlantic and trans-Pacific passenger service. Two companies have already been incorporated to engage in such trans-oceanic transport work, and the Goodyear organization will construct ships for both services.

The Pacific Zeppelin Transport Company was organized as a Delaware corporation last month with Mr. Litchfield as chairman of the board and Jerome C. Hunsaker as president and manager. Mr. Hunsaker is vice-president of the Goodyear-Zeppelin Corporation. The board of directors was tentatively selected to include Grayson M.-P. Murphy and J. P. Ripley, vice-president of the National City Bank. Financing of the venture has been provided for, 25 per cent of the capital to be supplied by the Goodyear-Zeppelin Corporation, 25 per cent by the Murphy bank, 25 per cent to be underwritten by the National City Bank, and the remainder by another banking group.

Details of the International Transport Company, which will manage the Atlantic route, have not yet been released.

Goodrich Plans to Transfer Hood Tire Factory to Akron

TIRE manufacturing activities of the Hood Rubber Company, recently acquired by the B. F. Goodrich Company, will be transferred from Watertown, Mass., to Akron, O., within a short time, according to an announcement by James D. Tew, president of the Goodrich company. At the same time a large part of Goodrich's footwear division will be moved to the Hood plant at Watertown, and the footwear division of the eastern plant expanded considerably. Other products, such as tiling, hose and various mechanical rubber goods, will be manufactured in whichever plant affords the greater economies in distribution.

The Hood organization, under present plans, will be maintained, with a vice-president and general manager in charge of operations. Goodrich officials expect to effect great economies in production through the purchase of the Hood organization, which has made Goodrich the second largest producer of rubber footwear in the United States. Goodrich's own footwear business formerly accounted for only 7 to 8 per cent of total sales, but the combined footwear business of Goodrich and Hood should amount to between 17 and 18 per cent of their consolidated sales volume.

Consolidated net sales of the B. F. Goodrich Company for the quarter ended September 30 are estimated at approximately $45,000,000, and consolidated net profit for the period at about $3,000,000. Consolidated net sales for the first nine months of 1929 approximated $120,000,000 with net profit equal to about $8,000,000. Based on the 1,053,638 shares of Goodrich common stock that will be outstanding following complete exchange for Hood common stock, net profit for the third quarter after preferred dividends, is equal to approximately $2.30 a share, and net profit for the nine months to just under $6 a share. With seasonable weather to stimulate sales of waterproof footwear in the final two months of the year, Goodrich profit for all of 1929 is estimated as more than $8 a common share. This would compare with earnings of $1.50 a share on 745,910 shares of common stock in 1928 and with $15.44 a share on 602,216 shares in 1927.

In connection with a suit by a Boston broker for a commission in the merger transaction, Judge Louis S. Cox, in equity session of the Massachusetts Superior Court last month, handed down a decree enjoining the State Street Trust Company from transferring, conveying, encumbering, distributing, or in any way disposing of any of the 100,000 shares of common stock of the B. F. Goodrich Company turned over to it for distribution to stockholders of the Hood Rubber Company. It is not believed, however, that this decision will interfere with the consolidation of the two companies as soon as certain technicalities can be straightened out.

Automotive Rubber Exports Are Lower During September

THE number of American casings exported during the month of September showed a drop of approximately 25 per cent below the figure for August in accordance with the usual seasonal slackening. The greater part of the September exports, as usual, consisted of automobile casings other than truck and bus casings 6 inches in size or larger. In this class, 154,181 casings were exported with a value of $1,650,785. The largest single customer for casings of this type was Argentina, which took 15,325 with a value of $176,683. Following Argentina in rank were Mexico, Spain and the Philippine Islands.

Truck and bus casings 6 inches or over exported during September totaled 21,522 valued at $510,540, with Belgium our first customer by taking 2,178 casings worth $51,445. Inner tube exports were valued at $255,635, with Argentina as our leading market. Other casings and inner tubes exported were valued at $15,905, automotive solid tires at $115,623, other solid tires at $55,142, and tire sundries and repair materials at $167,765.

The value of all types of rubber boots, rubber shoes, canvas rubber-soled shoes, rubber heels and rubber soles exported during September amounted to $2,073,602, of which rubber shoes were represented by $1,071,819. Germany was by far our largest customer for rubber shoes, the United Kingdom for rubber boots, and Argentina for canvas rubber-soled shoes. Argentina was also the principal destination for rubber heels and Sweden for rubber soles.

Canada led all other countries in imports of American rubber belting, while Australia was first in rubber hose. Chile was the second ranking customer for each and the largest customer for the two classes considered as a whole. Total September exports of rubber belting amounted to $265,397, and shipments of rubber hose aggregated $255,777.

During September, 1,471,165 pounds of reclaimed rubber were exported from the United States with a value of $100,027. Of this total, Canada received 862,485 pounds, valued at $60,228. Scrap and old rubber exported amounted to 4,645,609 pounds, with a value of $185,640. France was the chief recipient of this commodity, taking 1,423,678 pounds, valued at $56,791, while Spain followed close behind with shipments of 1,351,184 pounds, worth $56,156.

National Power Exposition Will Open on December 2

PLANS are well under way for the eighth National Exposition of Power and Mechanical Engineering at Grand Central Palace, New York City, opening December 2nd, and continuing throughout the week. The National Power Show, as the exposition has come to be more briefly known, had its inception in 1922. Last year's attendance was 123,000 and the number of exhibitors totalled 542, many of whom were suppliers of equipment to the rubber industry.

Exhibits of interest to rubber factory engineers will include machines and mechanical devices for temperature control, driers, indicating and recording instruments, machine parts, overhead hoists, worm gear reduction units, tire balancing machines and many others.

Coincident with the National Power Show, the American Society of Mechanical Engineers will hold their annual meeting in New York City.

Auto Accessory Shipments Show Seasonal Declines

MANUFACTURERS of parts, accessories and garage repair equipment who have enjoyed record business during the first eight months of the year, are now curtailing operations in a moderate way and will continue on slightly reduced schedules throughout October and November, according to the Motor and Equipment Association, of which several tire and rubber manufacturers and distributors are members.

Aggregate shipments of a large and representative group of manufacturers supplying parts and accessories to the car and truck makers as original equipment and parts, accessories and garage repair equipment to the wholesale trade in September were 175 per cent of the January, 1925, base index of 100 as compared with 182 in August and 202 in September last year. Accessory shipments to the trade in September were 84 per cent of the 1925 base as compared with 88 in August, 92 in July and 122 in September, 1928.

DEALERS' STOCKS OF TIRES BY STATES

October 1, 1929

	Total Casings			High Pressure			Inner Tubes		
	No. of Dealers Reporting	No. of Tires on Hand	Ave. No. per Dealer	No. of Dealers Reporting	No. of Tires on Hand		No. of Dealers Reporting	No. of Tubes on Hand	Ave. No. per Dealer
New England									
Maine	343	14,135	41.2	263	4,065		343	24,258	70.7
N. H.	164	9,962	60.7	132	2,617		168	15,707	93.5
Vt.	41	2,681	65.4	30	876		39	4,122	105.6
Mass.	638	52,850	82.8	480	12,234		641	74,049	115.5
R. I.	104	7,335	70.5	69	1,688		106	11,343	107.0
Conn.	284	19,091	67.2	231	4,228		272	27,282	100.3
Total	1,574	106,054	67.4	1,205	25,708		1,569	156,761	99.9
Middle Atlantic									
N. Y.	1,485	115,886	78.0	1,145	27,476		1,462	167,948	114.9
N. J.	503	36,055	71.7	371	7,968		494	49,708	100.6
Penn.	2,043	123,411	60.4	1,501	31,058		2,000	173,796	86.9
Total	4,031	275,352	68.3	3,017	66,502		3,956	391,452	99.0
East North Central									
Ohio	1,370	96,720	70.6	1,059	24,604		1,346	128,003	95.1
Ind.	921	64,372	69.9	734	17,818		916	95,931	104.7
Ill.	1,456	102,505	70.4	1,174	26,381		1,432	148,718	103.9
Mich.	973	57,839	59.4	749	12,220		965	90,918	94.2
Wis.	899	57,259	63.7	739	16,182		890	84,337	94.8
Total	5,619	378,695	67.4	4,455	97,205		5,549	547,907	98.7
West North Central									
Minn.	748	38,633	51.6	597	11,666		732	63,850	87.2
Iowa	923	52,358	56.7	765	16,579		912	81,990	89.9
Mo.	766	50,626	66.1	625	13,646		764	76,513	100.1
N. D.	387	23,689	61.2	318	6,817		384	32,564	84.8
S. D.	333	15,246	45.8	271	8,979		318	37,338	117.4
Neb.	459	27,222	59.3	376	7,805		450	42,214	93.8
Kans.	657	54,060	82.3	570	13,785		645	78,094	121.1
Total	4,273	261,834	61.3	3,522	79,277		4,205	412,563	98.1
South Atlantic									
Del.	44	3,113	70.8	34	1,000		45	5,476	121.7
Md.	337	17,916	53.2	234	4,931		329	24,706	75.1
Dist. Col.	65	5,207	80.1	46	1,213		65	9,553	149.3
Va.	583	27,507	47.2	393	6,924		572	44,198	77.3
W. Va.	362	24,900	68.8	255	5,054		357	34,011	95.3
N. C.	422	32,396	76.8	320	8,903		417	46,518	111.6
S. C.	242	10,936	45.2	179	3,421		242	19,815	81.9
Ga.	451	30,974	68.7	354	8,068		450	52,898	117.6
Fla	327	28,037	85.7	255	6,972		322	39,332	122.1
Total	2,833	180,986	63.9	2,070	46,486		2,798	276,507	98.8
East South Central									
Ky	270	18,138	67.2	217	4,342		267	29,098	109.0
Tenn.	257	18,780	73.1	197	4,043		251	21,983	87.6
Ala.	326	26,011	79.8	245	5,089		330	38,571	116.9
Miss.	258	14,497	56.2	213	4,951		247	28,135	113.9
Total	1,111	77,426	69.7	872	18,425		1,095	117,787	107.6
West South Central									
Ark.	314	23,616	75.2	260	7,329		319	35,005	109.7
La.	193	18,407	95.4	155	5,185		193	28,744	148.9
Okla.	339	41,812	123.3	277	9,797		333	57,758	173.4
Tex.	1,143	89,970	78.7	960	27,810		1,139	151,665	133.2
Total	1,989	173,805	87.4	1,652	50,121		1,984	273,172	137.7
Mountain									
Mont.	231	17,865	77.3	195	3,883		232	26,374	113.7
Idaho	198	11,042	55.8	160	2,530		191	14,960	78.3
Wyo.	99	4,579	46.3	82	1,021		98	6,908	70.5
Colo.	366	25,417	69.4	292	6,173		365	36,007	98.6
N. M.	116	5,287	45.6	96	1,432		118	8,862	75.1
Ariz.	164	12,053	73.5	132	2,758		164	17,674	107.8
Utah	147	9,879	67.2	116	2,295		149	12,583	84.4
Nev.	47	3,394	72.2	42	992		43	5,108	118.8
Total	1,368	89,516	65.4	1,115	21,084		1,360	128,476	94.5
Pacific									
Wash.	583	32,539	55.8	474	9,317		566	44,340	78.3
Ore.	304	17,932	59.0	247	4,970		301	24,950	82.9
Calif.	1,541	132,258	85.8	1,285	36,751		1,516	199,985	131.9
Total	2,428	182,729	75.3	2,006	51,038		2,383	269,275	113.0
Unallocated	191	12,646	66.2	131	3,155		180	18,455	102.5
Grand Total	25,417	1,739,043	68.4	20,045	459,001		25,079	2,592,355	103.4

NUMBER OF MAKES OF TIRES HANDLED

	Oct. 1, 1927		Oct. 1, 1928		Oct. 1, 1929	
	No. of Dealers	Per Cent of Total	No. of Dealers	Per Cent of Total	No. of Dealers	Per Cent of Total
No. of Makes:						
One	16,016	48.59	13,864	53.93	15,642	64.15
Two	11,706	35.51	8,662	33.70	6,676	27.38
Three	3,703	11.23	2,171	8.45	1,443	5.92
Four	1,081	3.28	704	2.74	410	1.68
Five	321	0.97	204	0.79	129	0.53
Six	138	0.42	102	0.39	82	0.34
Total	32,965	100.00	25,707	100.00	24,382	100.00

Tire Dealers' Gain *in* Casings,

The Average Tire Dealer Hel on October 1, According to Su

THAT stocks of tires in the hands of dealers throughout the United States have been considerably increased over this time a year ago, although stocks of inner tubes have declined, is shown by the final statistics compiled by the Department of Commerce from the survey undertaken by the Rubber Division of the Bureau of Foreign and Domestic Commerce. There continues to be a remarkable rise in the percentage of dealers carrying more than 200 casings, but the trend also appears to be toward concentration on the tires of a single manufacturer, more than 64 per cent of the dealers reporting that they handle but a single make of tire.

In a preliminary report, issued by the Department of Commerce on October 14, it was indicated that the average dealer was holding 67.7 casings and 101.1 inner tubes. With added information from about 3,000 more dealers, both of these figures showed the usual increase in the final report which revealed that the average dealer has 68.4 casings and 103.4 inner tubes as of October 1. The final report for the same date last year showed the average pneumatic tire and tube stock at 64.8 and 107.4, respectively, indicating a 5½ per cent gain for the former and a 4 per cent loss for the latter.

The increase in casing stocks this year reflects the record breaking production and shipments that have been made by tire factories in the past few months and indicates that dealers are better stocked to handle the increased number of motor cars. However, only 25,417 dealers responded to the current survey as against 26,012 in 1928, 33,548 in 1927, and 37,439 in 1926.

More Dealers With Larger Stocks

An analysis has been prepared of the reports from dealers having stocks of casings, and a comparison made to the survey of October 1, 1928. This year a smaller percentage of reports fell into the class of dealers having less than 101 casings in stock, a greater percentage of reports falling into the classes of dealers having more than 200 casings. Despite the lower total of all reports, there were 1,501 dealers carrying more than 200 casings as against only 1,395 a year ago.

The gains made by balloon casings and the decline on the part of high pressure casings have continued, and the Department of Commerce this year has segregated the dealers carrying high pressure casings, reversing the practice of previous years. The dealers this year report stocks of 1,280,042 balloon casings as against 764,187 last year and stocks of only 459,001 high pressure casings as compared with 921,502 a year ago. An unexpected gain was shown in the average number of solid tires carried. With more

Survey Shows Loss *in* Tubes

68.4 Casings and 103.4 Tubes Held Survey of Rubber Division

dealers answering that part of the questionnaire, it was shown that the present average is 24.2 solid tires per dealer as against only 23.4 in 1928.

How consistently the tendency toward concentration of sales efforts by dealers is progressing was proven by the fact that 64.15 per cent of all dealers reported that they handled only one make of tire as compared with 58.5 per cent on April 1 of this year and with 53.93 per cent on October 1, 1928. Of the dealers with more than a single line, 27.38 per cent handle two makes, 5.92 per cent handle three makes, and only 2.55 handle four or more makes.

Oklahoma this year replaced Florida in point of the largest average dealer stocks in the country. Oklahoma dealers reported average stocks of 123.3 casings and 173.4 inner tubes. Close behind in casings stocks were Louisiana, where the average dealer carried 95.4 casings, California with an average of 85.8 and Florida, last year's leader, with 85.7.

Special Analysis of Distribution

A special analysis of returns received up to October 12 from the States of Alabama, Arizona, California, Illinois, New York, North Carolina, Pennsylvania, and Texas, was made to determine the relative importance of different groups of dealers in tire distribution. This analysis is representative of all sections of the country, although covering only 7,295 of the 26,057 forms received. The following table shows the net results of this analysis:

	Number of Dealers	*Total No. of Casings*	*Average Casings per Dealer*	*Per Cent of Total Dealers*	*Per Cent of Total Casings*
Total Dealers Considered	7,295	529,275	72.55	100.00	100.00
All Dealers Selling Autos	2,800	171,955	61.41	38.38	32.48
All Dealers Selling Batteries	4,234	313,263	73.98	58.04	59.18
All Dealers with Vulcanizers	990	151,145	152.67	13.57	28.55
Selling Both Auto and Batteries	2,151	143,097	66.52	29.48	27.04
Selling Autos and Vulcanizing	209	30,193	144.46	2.86	5.70
Selling Batteries and Vulcanizing	565	106,444	188.39	7.74	20.11
Total Selling Autos, or Batteries, or with Vulcanizing Equipment	5,409	432,668	79.99	74.14	81.75

This table shows that of 7,295 dealers with average stocks of 72.55 tires each, 5,409 dealers with average stocks of 79.99 tires each were in the group selling automobiles or batteries, or vulcanizing tires. The automobile dealers' stocks of casings averaged only 61.41 per dealer, the battery dealers' stocks averaged 73.98 casings per dealer, and the vulcanizers' stocks averaged 152.67 casings per dealer; the tire dealers with vulcanizing equipment are on the average larger dealers than those selling batteries or automobiles, though much fewer in number. Over 75 per cent of the dealers selling automobiles also sell batteries, and over 58 per cent of the dealers with vulcanizing equipment sell batteries. Other similar facts may be deduced from a careful study of the table.

DEALERS' STOCKS OF AUTOMOBILE TIRES

	October 1, 1928			*October 1, 1929*		
	Number	*Dealers Reporting*	*Ave. per Dealer*	*Number*	*Dealers Reporting*	*Ave. per Dealer*
Total Casings	1,685,685	26,012	64.8	1,739,043	25,417	68.4
Balloon casings	764,187	17,378	44.0	1,280,042	(a)	
High pressure casings	921,502	(a)		459,001	20,045	22.9
Inner tubes	2,750,768	25,616	107.4	2,592,355	25,079	103.4
Solids, etc	22,793	974	23.4	24,940	1,032	24.2

(a) Number of dealers not tabulated separately.

AVERAGE STOCKS PER DEALER

	1924	1925	1926	1927	1928	1929
Total casings	53.6	56.6	49.9	57.6	64.8	68.4
Balloon casings	16.3	17.5	19.8	30.7	44.0	(a)
High pressure casings	(a)	(a)	(a)	(a)	(a)	22.9
Inner tubes	79.9	99.1	93.8	103.1	107.4	103.4
Solids, etc.	(b)	25.0	23.9	26.1	23.4	24.2

(a) Number of dealers not tabulated separately on survey indicated.
(b) Comparable statistics for 1924 are not available.

DEALERS CLASSIFIED BY VOLUME OF STOCK

	October 1, 1928			*October 1, 1929*		
	Number of Dealers	*Per Cent of Total Dealers*	*Number of Casings*	*Number of Dealers*	*Per Cent of Total Dealers*	*Number of Casings*
Less than 10	4,842	18.61	25,013	4,417	17.38	23,141
10-25	7,404	28.46	123,171	7,398	29.11	123,835
26-50	5,903	22.69	218,940	5,815	22.88	214,444
51-100	4,333	16.67	305,109	4,211	16.57	300,878
101-200	2,135	8.21	297,407	2,075	8.16	291,507
201-300	613	2.36	150,085	612	2.41	151,212
301-400	276	1.06	96,402	287	1.13	99,390
401-1,000	391	1.50	235,350	472	1.86	284,645
Above 1,000	115	0.44	234,212	130	0.50	249,991
Total	26,012	100.00	1,685,689	25,417	100.00	1,739,043

SUMMARY OF DEALERS' BUSINESS

	October 1, 1928		*October 1, 1929*	
	Number	*Per Cent of Total*	*Number*	*Per Cent of Total*
Total reports received	26,681	100.0	26,057	100.0
Sell automobiles	10,671	40.0	10,203	39.2
Sell gasoline	20,598	77.2	19,318	74.1
Sell batteries	16,246	60.9	15,550	59.7
Automotive repairs	(a)		12,642	48.5
Vulcanizing equipment	3,831	14.4	3,589	13.8
Sell tire repair materials	18,728	70.2	(a)	
Repair inner tubes	17,554	65.8	(a)	
Sell tires on instalment	5,807	21.7	(a)	

(a) Question not asked on survey indicated.

DEALERS' STOCKS OF SOLID AND CUSHION TIRES

States	*Dealers No. of*	*Hand No. on*	*States*	*Dealers No. of*	*Hand No. on*
Alabama	11	368	Nevada	6	157
Arizona	9	119	New Hampshire	7	96
Arkansas	16	179	New Jersey	19	870
California	81	1,429	New Mexico	6	47
Colorado	13	142	New York	77	3,280
Connecticut	16	197	North Carolina	22	448
Delaware	4	11	North Dakota	7	262
Dist. of Col.	6	221	Ohio	61	1,081
Florida	10	69	Oklahoma	10	229
Georgia	18	625	Oregon	14	173
Idaho	10	197	Pennsylvania	109	1,665
Illinois	58	2,454	Rhode Island	4	104
Indiana	49	1,169	South Carolina	1	16
Iowa	30	524	South Dakota	16	249
Kansas	8	964	Tennessee	16	694
Kentucky	13	254	Texas	29	444
Louisiana	7	159	Utah	6	59
Maine	12	187	Vermont	2	6
Maryland	9	115	Virginia	27	419
Massachusetts	33	115	Washington	27	351
Michigan	28	944	West Virginia	17	315
Minnesota	24	806	Wisconsin	27	666
Mississippi	7	82	Wyoming	1	2
Missouri	24	655	Unallocated	9	578
Montana	11	113			
Nebraska	5	56	Total	1,032	24,940

U. S. Rubber "Cager"—Firestone "Thorogrip"—Servus "Ralph Jones"—Goodrich "Chief Long Lance"—Converse "Lucky Boy"

Rubber Canvas Footwear for 1930

New Styles Feature More Graceful Lines, New Types of Trimmings and Reinforcement, New Molded Sole Designs and New Color Trends

THE past season on rubber canvas footwear has been one of the best ever known in the industry. New markets both at home and abroad have been opened up, and the added features and improvements in the shoes themselves, together with the summer of seasonable and pleasant weather combined to make the record possible. Increased participation in athletics and the trend toward compulsory exercise in high and preparatory schools and colleges has greatly enhanced the fall demand, a season in which rubber footwear factories formerly looked for little tennis business. As a result many of the factories this fall did not cut their canvas production schedules at all.

Prices have shown strength with the 1930 line which was presented to the trade starting August 1. Increases have been made on several low-priced numbers where values offered were out of line with costs, but on many of the medium-priced shoes extra features have been added at no increase in price. General features of the new shoes include more graceful lines, new types of trimmings and reinforcements, sturdier soles, new molded sole designs, refinements in women's oxfords along leather shoe lines, and new color trends particularly in sun tans which promise to be popular.

Converse Rubber Company, Malden, Mass., is featuring its new line under the caption "Skoots" with the neat trademark of a terrior dog carrying a tennis shoe in its mouth. The All-Star, one of the leading basketball shoes for twelve years, appears in a lighter weight and black molded sole, carrying the features originated by Converse last year, the pivot button, orthopedic shank, merrowed tongue, and knurled edge. New shoes are the "Lucky Boy" with a moulded sole in Swastika design; the "Pinto" with orange stripe trimmings, and heavy heel and tap cut-out sole design; "Broncho," a companion shoe, with a heavy diamond cup calendered sole; and the "Tenax" in the lower priced field with a backstay and a heavy black sole with a red toe cap. Medium priced shoes carry a new trim feature with a wide eyelet stay at the base affording reinforcement at the toe bone where many shoes are scuffed out.

Dominion Rubber Company, Montreal, Quebec, announces its new line of "Fleetfoot" for 1930, calling attention to new sun tan fabrics, new foxings and toe grips that add much to the life of the sport shoe, new nickel eyelets, new trims, new sole treads and new type soles. The "Racer" and the "Umpire" are new shoes for badminton and tennis enthusiasts. The "Racer" has an inlaid non-skid sole of live rubber with a dark colored centre and a lightcolored strip around the outer edge. Smart sport oxfords in many colors and mixtures, with fancy buckles and ornate saddle straps are notable for their distinctiveness, sun tan colors predominating.

Firestone Footwear Company, Hudson, Mass., states that additions to the line have been made, and construction has been improved in several instances. "Thorogrip" and "Thorogrip Junior" are sturdy basketball shoes with sole of buffed crepe; the "Tiretred" and "Tiretred Junior" are moderately priced moulded sole lace to the toe tennis which carry the design used on the tread of the Firestone tire. "Commander" carries a cleated sole cut out design; and "Trooper" a calendered moulded effect heavy black outsole.

The B. F. Goodrich Company, Akron, O., emphasizes correct designing and merchandising in its new canvas sport shoe line, with new selling features and constructions. One of the leading numbers is the "Chief Long Lance," a shoe designed by Chief Buffalo Child Long Lance, Blackfoot Indian Chief and former Carlisle athlete. It carries a unique sole of typical Indian design and a special shank construction which permits extreme flexibility without sacrificing wearing qualities. Other features are a cushion heel seat, form fitting tongue and gray toe guard. Goodrich has a very complete line of basketball shoes in the "Victory," "Dribbler," "Mentor" and "Starlite" which carry gum sanded sole with two colors of rubber. "The Dean" is a new shoe with a special low cut back.

Gutta Percha and Rubber Company, Ltd., of Toronto, Canada, presents its new line of "GP" Outing Footwear, featuring in its sport line, as do all Canadian companies, shoes for badminton and tennis. The "Leader" is a super-basketball shoe designed to combined lightness and strength, with a heavy reinforced foxing, buffed crepe sole, and sponge rubber insole. "Guard" is designed for tennis players and "Badminton" for badminton and squash. Heel pumps, with colored trimmings, and new fastenings such as lace ties and snaps, are very attractive numbers.

The Kaufman Rubber Company, Kitchener, Ontario, markets its outing footwear under the "Life-Buoy" trade-

mark. Its blucher cut athletic shoes have the eyelet stay and toe cap in one piece which offers a splendid toe reinforcement. The leading tennis number is very complimentarily named for "Tilden." This shoe carries an extra reinforcement trimming around the top of the quarter. In the fancy oxford line, the "Sally" is a fancy duck tie shoe with a sand sole with crepe knurling, while the "Beach" is its counterpart in the oxford.

La Crosse Rubber Mills Company, La Crosse, Wisconsin, the most western factory producing rubber footwear in the country, presents its line of "Athletics" for 1930, following the color trend of wearing apparel by using color contrasts freely. Service and stock turnover are emphasized in the La Crosse broadside, which shows a complete line of fast selling, good quality, moderately priced shoes, manufactured under the La Crosse, Wisconsin, and Badger brands. The La Crosse Star Brand line shows the "Volley," a crepe sole sun tan loose lined shoe, the "Pioneer," and the "Amazon." Wisconsin brand shoes in the medium priced class are the "Pilot," "Sterling," "Hart" and "Gem," several of which carry attractive printed ducks. The Badger line covers the usual bal and blucher trimmed and untrimmed shoes.

Special Advertising Appeals

The Miner Rubber Company, Canada, manufacturers of the Greyhound Range of canvas footwear, are offering a special advertising appeal to aid their dealers in capturing the Boy Scout and Guide demand. Such shoes as the "Olympic," "Marathon," "Athlete," "Campus," "Varsity" and "Speedster" readily invite the attention of the boy who loves outdoor sports. Many novelty effects in design and color patterns and blends are to be noted in the misses', women's and children's line.

Northern Rubber Company, Guelph, Canada, follows the Canadian trend to stress athletic and sports use in its canvas line, at the same time producing some very attractive effects in women's, misses' and children's fancy shoes for summer wear. The "Gym" is a molded suction sole athletic shoe made of heavy unbleached duck; companion shoes in lower price ranges are the "Master," "Argyle" and "Relay." Among the pumps and oxfords, which feature printed ducks in attractive patterns and colors, are the "Geraldine," with a white duck vamp, black and white checkered quarter and strap, pneumatic rubber heel, white rubber sole, and kaneva insole, and the "Babs" with grey honeycomb duck, grey rufftred sole and cotton insole.

Mishawaka Rubber and Woolen Manufacturing Company, Mishawaka, Indiana, makers of "Ball Brand" footwear featuring the red ball trademark, emphasizes quality in their canvas line for 1930. All shoes which wholesale for $1.00 and up carry the red ball trademark, those below this price do not. The "Official" is a new basketball shoe with molded sole, carrying a pivot block, knurled edge, and orthopedic shank, with a sponge rubber cushion and cork insole. Other molded sole shoes are the "Klinger" and the "Grizzly." Crepe sole shoes are the "Cadillac" and the "Baugo," the former with loose lining, saddlestrap and sponge cushion, the latter also with loose-lined uppers but minus the other features at a lower price. "Spartan" is a blucher lace to toe shoe with an upper of tan suede leather unlined, and is recommended as a splendid camping, hiking, and play shoe.

Top: U. S. Rubber "Boardwalk
Below: Dominion "Racer"—Converse "Tenax"

The Servus Rubber Company, Rock Island, Ill., presents a line of sport shoes which are described as "actually sparkling with color, nap and dash." The basketball shoe line contains the well known shoes such as the "Phog Allen," "Dr. Meanwell" and "Ralph Jones," named for the coaches who designed them, and several new numbers, the "Dutch Lonborg" shoe, the women's "Phog Allen" shoe to take care of the demand for a women's basketball shoe, and the "Sermold," a new molded sole basketball shoe. These shoes are also constructed under the same name with the added appelation "Jr." to denote lighter and cheaper construction for practice games and for those who cannot afford the higher priced shoes. "Serib" is an attractive new lace-to-toe model with a two-tone washboard pattern sole vulcanized to the heavy duck upper by a special process.

Pumps and Oxfords in Colors

United States Rubber Company's 1930 line of "Keds" embodies the salient features which have characterized this widely established line of canvas footwear for many years, with improvements consistent with the trend. The "Spring-Step" basketball shoe has a new arch cushion of sponge rubber, and a new shoe with a molded sole, carrying the pivot button feature, called the "Cager," has been added. Three other molded sole shoes of merit are the "Royal Tread," the "Big Leaguer" and the "Sprinter." The "Speed King" is a new medium priced basketball and other sports shoe with a novel two color non-slipping outsole. Uppers of sun tan color duck predominate in this class. Pumps and oxfords of many attractive colors and designs feature the U. S. line this year. The "Boardwalk" is a new sport oxford, with uppers of sun tan and bleached coarsely woven duck and saddlestrap trim. It has a welt type sole and low heel, and compares very favorably with leather and rubber soled canvas shoes of several times the price.

Mention of the new canvas lines of the Beacon Falls Rubber Shoe Company, Cambridge Rubber Company, the Hood Rubber Company, Inc., and the Phillips-Baker Rubber Company is omitted on account of their catalogues not being received in time. Feature shoes of the lines of these well known companies will be described in our "Rubber Goods and Specialties" page from time to time.

Miner "Teddy"—Northern "Geraldine"—Kaufman "Stanley"—LaCrosse "Valley"—Kaufman "Tilden"—Gutta-Percha "Gloria"

Schaphorst's CHATS *with the* ENGINEER

By W. F. SCHAPHORST, M.E.

When to Scrap Rubber Equipment

IN SOME rubber factories, there is still too much obsolete equipment doing duty,—equipment that should be scrapped.

Most of our automobiles are junked as soon as they are out-of-date. They may not even be obsolete when they are dicarded. We just don't like the "looks" of our car and buy a new one.

Why do we persist in operating obsolete equipment in our factories, and at the same time persist in demanding strictly up-to-date pleasure equipment? To scrap obsolete industrial machinery pays, while the purchasing of new machinery every year to play with does not pay directly in money. Indirectly pleasure can pay, of course.

All of which raises the question: "When does a thing become obsolete?" So far as I know there is no rule or formula that positively answers this very important question. It is not easy to write a rule or formula that is applicable to everything.

It may be that you as an automobile owner declare that your car becomes obsolete in one year and therefore you annually trade it in for a new one. But the "old" car still continues to run for a number of years in the hands of subsequent owners. Whether or not your automobile is really obsolete is therefore largely your own whim.

I know of steam power plants in which ten-year-old engines or turbines have been "junked" and replaced by more efficient and more economical apparatus. The self-same equipment in other less progressive power plants would have been kept another ten years or more.

You and I have our twn ideas about obsolete clothes and when they should be replaced. The average man "wears out" one straw hat and one felt hat each year. Women "wear out" hats more rapidly than men. Some people use lead pencils until they are "stubs." Others discard them as soon as they are inconveniently short. And so on.

The Formula

But let us get down to brass tacks. What we are looking for is a good rule or formula. My own answer to the question is this: *A thing is obsolete as soon as it is found that it will pay to replace it.*

Sometimes it pays to throw out machines that are new. I was once employed by a concern that manufactured a decidedly inefficient machine. I didn't know it was inefficient and uneconomical at the time or I would not have worked for them. They were in business for three years and then were forced to quit because nobody would buy. Many of their machines were replaced inside of a year because they actually were obsolete before they were installed. They were "new," yes, but obsolete nevertheless because it paid the purchasers to install something better immediately.

Simply because we can "get along" with an old machine part, or thing, is no proof that it is not already obsolete. My contention is that entirely too much machinery is in daily use that should be in the scrap heap. It should be replaced because it will *pay* to replace it.

REVIEW DESK

Books, New Publications, Catalogues, Etc.

THE NATURAL COAGULATION OF HEVEA LATEX. By A. S. Corbet. Published by the Rubber Research Institute of Malaya, Kuala Lumpur, F.M.S. 1929. 24 pp.

The agencies by which the changes occurring during natural coagulation of latex are promoted have been the subject of many investigations over the past two decades. The results of the present research reported by Dr. Corbet prove definitely the presence of a bacillus, which probably enters the latex in the field and which is responsible under certain conditions for the coagulation of Hevea latex. This bulletin represents the first of a series which the Rubber Research Institute intends to issue at intervals when specific investigations of a scientific or technical nature have been completed to a stage suitable for publication.

REPORTS FOR EXECUTIVE CONTROL. Published by the Policyholders Service Bureau of the Metropolitan Life Insurance Company, 1 Madison Avenue, New York City. 1929.

Few companies are able to dispense with the daily financial report and a current review of activities, and progressive and outstanding companies have met the problem of executive control by supplying essential information in an attractive and easily assimilable manner. The standard daily reports employed by fourteen prominent business organizations are described with reproductions of forms and graphs in this publication.

COTTON FROM PLANT TO PRODUCT. Published by the Pepperell Manufacturing Company, 160 State Sreet, Boston, Mass. 1929. 68 pp.

In response to numerous requests from students, teachers, sales representatives and others for a book on cotton and its manufacture stripped of technical terms and treated in popular style, this attractive little volume has been prepared by a leading manufacturer. It is copiously illustrated and tells in simple language how cotton grows and what happens to it after it has been picked in the fields.

THE ECONOMIC EVOLUTION OF THE UNITED STATES: ITS BACKGROUND AND SIGNIFICANCE. By Magnus W. Alexander. Published by the National Industrial Conference Board, Inc., 247 Park Avenue, New York City. 56 pp.

Greater opportunities for the pursuance of an enhanced cultural and spiritual life for the masses, owing to the increased leisure and economic welfare which are the gift of the power-driven machine, are projected as the heritage of the so-called machine-civilization as developing in the United States by Mr. Alexander, president of the National Industrial Conference Board, in this paper, a reprint of his address before the World Engineering Congress at Tokyo on November 2.

ZINC OXIDE AS A RUBBER PIGMENT. Published by the New Jersey Zinc Company, 160 Front Street, New York City. 1929. 32 pp.

The reasons for the use of zinc oxide in rubber compounds, particularly such as solid and heavy truck and bus pneumatic tires, the properties of zinc oxide in such compounds, and the properties of zinc oxide in rubber which depend upon the kind or quality of the zinc oxide used are fully described in this research bulletin. A six-page technical paper and patent bibliography concludes the pamphlet.

THIONEX TIRES TESTED AT THE GENERAL MOTORS PROVING GROUND. Published by E. I. du Pont de Nemours & Company, Inc., Wilmington, Del. 1929.

This laboratory report covers road tests that were conducted at the General Motors proving ground on four 32 by 6.50 Thionex tires that were cured at 270 degrees F. These tires were compared with an equal number of high temperature cured tires in which mercaptobenzothiazole was used as an accelerator.

CHEMICAL ENGINEERING CATALOG. 1929 (14th Annual) Edition. Published by the Chemical Catalog Company, Inc., 419 Fourth Avenue, New York City. 1205 pp

Containing 100 pages more than the 1928 edition, this volume presents collected condensed and standardized catalog data of equipment, machinery, laboratory supplies, heavy and fine chemicals and raw materials used in the industries employing chemical processes of manufacture and is designed for the use of chemical engineers, works managers and superintendents of such organizations. It includes classified indexes, carefully cross-referenced, and a technical and scientific book section, cataloging and briefly describing an extensive list of books in English on chemical and related subjects.

Uses of Rubber in Defeating Vibration in Automobiles

Improvements in the Durability and Physical Properties of Rubber Have Opened Up New Possibilities for Its Use in Automobile Construction

By THOMAS J. LITLE, JR.

Engineering Consultant and Industrialist, Formerly Chief Engineer of Lincoln Motor Company, Marmon Motor Car Company and President of S. A. E.

WHILE the use of rubber has been long known in conjunction with many attempts toward absorbing and defeating vibration in all kinds of mechanical structures, its development in connection with automotive design has been of a desultory character. It seems strange indeed that this should have been the case, but in our industry any kind of development entailing invention and original design seems to occur in cycles. By that I mean that if one man has successfully demonstrated that some innovation has produced not only a marked improvement in the product, but can be readily appreciated by the discriminating, then we find that a flock of other inventors and engineers come to the front with alternate schemes for improvement. It is probably fortunate for the industry that this is true, for it keeps our engineers and designers on their toes and ever watchful for improvement, which is immediately reflected in increased company sales and, of course, redounds to the credit of the designer.

In automotive circles we are cognizant of the fact that to be continually successful we must manage by hook or crook to outsmart the rest of the industry. That is the aim of every progressive engineer.

THOMAS J. LITLE, JR.

Rubber is a very interesting material and due to the great improvement in its manufacture, particularly toward stabilization, has greatly increased the possibility of its use in all kinds of automotive structures. Rubber used to be very perishable, easily affected by light exposure and very irregular in its physical properties. This was due to the fact that its manufacture varied widely. By that I mean that the different runs of any given rubber product would be good or bad, dependent upon the skill of the operator, who used very uncertain or "rule of thumb" methods. Fortunately today, much of this uncertainty has been eliminated. We find great rubber companies investing huge sums of money in research and experimentation. We find remarkable improvements in the durability of the product, as well as greatly increased physical properties, to withstand fatigue and overstressing, so that now the engineer can safely rely upon rubber to replace many steel parts. Where this can be done, the advantages are manifold.

First, if a rubber part can be designed to replace several steel parts in a joint assembly, there is an immediate possibility of a cost saving, for in joint assemblies there is always considerable machining and assembling, which can frequently be eliminated by use of simple molded rubber.

The second great advantage obtained is that by so doing, the lubrication of mechanical parts is obviated, and the third advantage being that noise and rattle can be completely eliminated. This certainly is a very important consideration in automotive work.

Rubber has been very successfully used to replace the mechanical spring shackle. It is true that in some designs inadequate sections are provided, which of course result in relatively short life, due to overstressing. The engineer might, in this case, be excused, for there is no tradition or background for him to follow, but now profiting by the experience of others, he may safely and accurately design such parts. There are a good many control rods containing joints, which transmit but very little power, connected with the modern automobile power-plant, and which unquestionably could be made of rubber to deaden all rattle and sound. We frequently resort to the use of cheap stamped parts in these cases and then spend considerable time in assembling them, by bending and twisting them to prevent rattle.

Rubber may be used very successfully in joint manufacture. Wherever two wood or metal surfaces are in moving contact, squeaks and rattles will sometime or other develop. It is extremely important that engineers carefully study the possibilities of using rubber in such places. One of the most simple and remarkably efficient adaptations of rubber has been the pump and generator, and accessory drives, usually on the side of the engine. A tubular section of rubber, similar to a piece of common garden hose, is frequently used as a self-aligning coupling and this, in my belief, is unquestionably better than any form of universal mechanical joint yet devised.

Rubber has been successfully used in preventing the transmission of shock and vibration from the engine and chassis to the steering wheel. Rubber is very successfully used in insulating the body from the chassis, as well as insulating the powerplant from the frame and chassis. The old farmer who used a piece of leather for a hinge on his

garden gate unquestionably had a basic idea that could easily be recognized by some of our prominent engineers. Of course, he might have used a more permanent material than leather, but he was not troubled with the lubrication of the steel hinge, or its rusting and sticking. Very important development has recently been made in the use of rubber in vibration damping devices, particularly on multi-cylinder engines. The problem here is to damp out and counteract the torsional vibration emanating from the crank-shaft and caused by an intermittent winding-up and untwisting of the shaft, due to the sharp and frequent explosion impulses. Here we have succeeded in using a simple stamped steel disc, mounted in rubber and placed on the front end of the crank-shaft. This disc continually oscillates during its rotation and instantly damps out any torsional vibration in its incipient stage. This device, designed by the author, replaced a rather costly and complicated vibration damper, consisting of a flywheel driven by a yielding or slipping clutch, and in this particular instance the saving constituted by the use of the rubber device was so great as to continually more than twice pay the entire operating cost of the Engineering Department of the Marmon Motor Car Company.

Rubber in Decreasing Costs

I contend that there are many opportunities throughout the automobile structure for the use of rubber, not only for damping out noise and vibration, but for greatly decreasing the cost of the various parts in question. Rubber is now very successfully used in the manufacture of carpets and upholstery cloth, particularly of the Mohair variety, where a pile fabric is used; the back of the fabric being coated and saturated with rubber, so as to completely lock and anchor the individual fibers in place, in precisely the same way that rubber is used to retain the bristles in brushes. The wearing surfaces are permanent and it is perfectly sanitary, as it can be easily washed with soap and water. Rubber seat cushions, of the pneumatic type, will unquestionably be used to a great extent in the near future, replacing coil springs, cotton, hair jute-fiber, etc.

Now we know how to vulcanize rubber to metal surfaces, there has been opened up to us great possibilities for a simple, flexible connection of one metal part to another. There are literally thousands of possible applications of rubber to automobiles alone, and of course all other industries have similar possibilities.

Rubber in Joints and Shafts

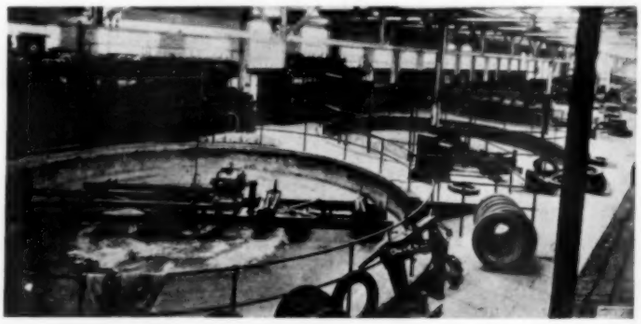
I might go on at great length to enumerate various experimental and practical devices with which I am familiar, such as the use of rubber drive centers for clutch discs, which when used seem to damp out the terrific noise encountered at times in transmissions. Factory managers will tell you that while previously a large percentage of transmissions had to be pulled from finished cars on account of excessive noise, the use of these rubber centered clutch discs has entirely eliminated this practice. Consider such places as universal joints, or propellor shafts, which are always a source of great annoyance, as well as inaccessible; lubrication being invariably neglected by the car owner, with consequent rapid wear and misalignment, resulting in excessive vibration and noise. How much more sensible it would be to use a properly designed rubber joint, which would easily last the life of the car. I predict great activity in design along this line.

There have been literally thousands of attempts made to produce some type of spring tire for automobiles, but rubber reigns supreme in this case. It has been facetiously remarked that we should have rubber fenders on cars, which would not be ruined by the slightest bump, as is the case at the present time. This idea is really not as ridiculous as it may seem. Rubber can undoubtedly be used for shock absorbing devices to damp out road shock and prevent the bounding and rebounding of the car on its springs. In fact, I believe rubber will eventually be used to entirely replace car springs, and I have been watching with a great deal of interest the development along this line in Germany. A great many engineers still seem to be skeptical as to the use and permanence of rubber, as were most people when rubber heels were first proposed for shoes. I recommend that progressive engineers carefully study the possibilities of rubber and become perfectly familiar with its remarkable physical properties, remembering that the rubber chemist can produce almost an unlimited variety of product to meet every possible condition of use.

New Machine Tests Tire Wear

IN comparing one tire with another on tire wear tests, factors such as speed, the type of car and of driving, the weather and temperature, the class of road surface, and so on, vary widely, and therefore accurate results are difficult to obtain. Definite and reliable data about wire wear, as a result, is not easily available, especially if the research is confined to tire service on the road.

With the aim of eliminating these variable quantities, L. J. Lambourn, technologist of the Dunlop Rubber Company, Fort Dunlop, England, has recently developed a special machine, a photograph of which appears below, by which conditions representative of rough roads, wet roads,



New Tire Testing Machine, Fort Dunlop, Birmingham

dusty roads, quick acceleration, wheel spin, and high temperature can all be reproduced and controlled. There is no doubt whatever that the majority of owners could get considerably better service from their tires if they did but appreciate more generally the causes of wear. The relation between abrasion, or wear, of tires and slip, which, of course, is always taking place when tires are running, can be accurately determined. Approximately the rate of wear increases not in direct ratio to the slip but as the square of it up to values of about 25 per cent. Above that value the relation is linear.

To show the close correspondence between the results obtained on the machine and on the road, samples of the actual treads of tires were made into test wheels while the real tires were run under average conditions, and the rate of wear of the tire on the road and on the machine was compared. The value of 100 being taken to represent the standard tread compound, the following results have been obtained:

RELATIVE WEAR

On road.	*On testing machine*
100	100
130	139
142	150
225	200
93	95
117	117
92	92

Transporting Washed Rubber and Compounding Materials

Materials Handling in the Plant of the Goodyear Tire and Rubber Company

Problem Involves Transporting 1,863,200 Pounds of Materials Per Day With Personnel of 964—17,000 Trucks and Other Equipment Are Necessary

By C. C. STUBER

General Foreman, Goodyear Tire and Rubber Company, Akron, Ohio

INDUSTRIAL transportation, as applied to our organization, means the one best way of transporting material in the shortest possible time with the least expenditure of money and energy, so that the part played by transportation, in the final cost of the finished product, is reduced to a minimum.

As we know, there has been misconception in the minds of some as to just what is meant by inter- and intra-transportation and what it amounts to in our factory. Such confusion may be entertained when consideration is given to our problem of unloading 77 freight car loads of raw material daily. This requires a careful study of suitable transportation routes. From the staggering number of 1214 transportation routes in the beginning, we have been able to reduce the number to 415 routes.

A personnel of 964 can transport an aggregate weight of 1,863,269 lb. over a floor space of 6,443,419 sq. ft. by the use of 17,000 electric power trucks, industrial hand trucks, and platform skids. If such equipment could be coupled together, it would complete a train more than 19 miles in length, capable of transporting 34,000,000 lb. of material, occupying a floor space of 306,000 sq. ft.

There are 81 elevators distributing truck loads among the various floors. Revolving independently are some 29,654 ft. of electric and gravity conveyors which are mounted on especially strong and rugged frames. From their remote controls, they can be governed to facilitate and expedite an even flow of material to the various machines along their path. The ease with which material is placed on or taken off the conveyor by the operators is gratifying to note. The conveyors are equipped with safety features.

Such a tremendous capital investment must be economically and efficiently handled, and, in so far as industrial transportation cannot be eliminated, it therefore becomes necessary and a part of the manufacturing process. We know that transportation does add to the value of the product (which is contrary to previous statements), as care must be taken in handling the various elements which go to make up our products. To prevent any of the elements from becoming contaminated by foreign substances while en route may protect and preserve the quality of our product.

By analyzing our transportation problems, our scientific investigations disclosed much lost time and wasted motion among our suppliers, the confusion of transportation deliveries between various departments, and the multiplicity of various different types and styles of truck equipment. We then realized its imperfections. When we realize the amount of internal transportation and why it is necessary to continue to carry back and forth the equivalent of 16 times the weight, for such is the actual handling of 29,812,304 lb. before the finished product is completed at a weight of 1,863,269 lb., is not the total rather staggering?

Fabulous sums have been expended for installation of mechanical or gravity conveyors which were substituted for trucking. Such installations were made on the prominent routes, where the fleets of the greatest number of trucks were operating. When such routes were conveyorized, it not only eliminated the trucking operations, but allowed additional space for production which formerly was occupied by trucks.

The extent to which a transportation system may be extended by an over-enthusiastic manager may not only result in a rising cost, through the expense of operating, but may slow up actual production.

For the purpose of administration and accounting, the functions of our transportation organization are divided into the following units:

A Transportation of raw material from our unloading docks to our various warerooms and then to preparatory divisions.

B Transportation of all prepared stock to their respective cushions ahead of assembling divisions.

C Transportation of articles while in the process of being manufactured and manufactured articles to finished-product storerooms.

D Transportation of finished articles from finished-pro-

Contributed by the Materials Handling Division for presentation at the Akron Meeting, Akron, Ohio, October 21 to 23, 1929, of THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS, 29 West 39th Street, New York, N. Y. Reprinted from the TRANSACTIONS OF THE SOCIETY.

Conveying Equipment in Tire Inspection Room

duct storerooms to the various shipping departments.

E Transportation of material by electric power trucks.

F Industrial electric-truck batteries-charging division.

Each division is in charge of a foreman and is subdivided into sections controlled by a head supervisor. Each section is sub-divided into as many parts as are necessary to render efficient service for the transporting of material, and each of these sub-divisions has a supervisor in charge.

Items for consideration are:

A Standard equipment.

B Aisleways.

C Return loads.

D Routing of deliveries in cycles, or one way traffic.

The supervisors are trained for their duties and rights within the organization and are taught all the intricacies of industrial receiving and shipping, such as careful planning and routing, for the transportation man must have a technical knowledge, not only of his position, but also of the material he is handling. This can be obtained only by a systematic study of all the factors which enter into the service of transportation as well as those directly affecting department shipping and receiving.

All transportation suppliers' wage earnings are computed on a piecework basis. All piecework operations include the following:

When material is loaded upon equipment for transporting or stowed in any of the raw-material or finished-product storerooms, the material in question will be segregated according to quality, size, and type and placed in the proper location.

The marking on the various articles will be facing one way when in storage or on equipment, so that the description on articles will be accessible for any one to read. When a supplier is dispatched for material, he will see that just the amount, size, and type, as requested on order, are loaded.

Material, whether raw, in the process of being manufactured, or in the finished product line, must be loaded upon, as well as removed from, platform skid, truck, or conveyor in a satisfactory manner.

These items are carefully checked to avoid unnecessary repiling of material resulting from slovenly work on the part of the supplier, as repiling causes an increase in the unit cost of the department to which material is being delivered.

When material is delivered to a department for use of the department's craftsmen, the supplier distributes his load in such a way that all craftsmen will be kept busy and so that there will be no lost time in waiting for or going any distance for raw material. The supplier's incentive, of course, is that, operating on piecework himself, the greater the amount of material the craftsmen consume and the smaller the possibility of a delay in the craftsmen's duties, aided by his own elimination of delays in operation, the greater will be his earnings. This is so important and has such a far-reaching effect upon the output of the factory, by keeping the craftsmen contented and maintaining an even and regular distribution of material, that such distribution is not left entirely to the supplier, but is very carefully watched by the transportation supervision cooperating with the production departments. Delays cause a loss in production that not only occasions a loss to the company but also leads to labor dissatisfaction.

Accounting Control

The cost of transportation service is charged directly to the production division from which material is being transported.

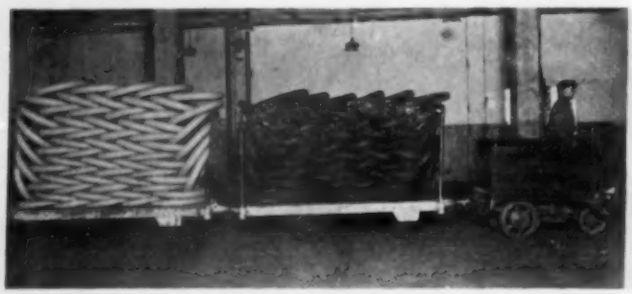
Industrial transport equipment is divided into 44 classes, and a code number is set up for each class. There are 13 classes or codes for electric power trucks, 4 classes for batteries, 22 classes for industrial trucks, and 5 classes for platform skids. All repairs, lubrication, and depreciation are charged directly against a class or code. Industrial transportation equipment is allocated according to production departments, and truck maintenance is charged to the production division according to such allocation.

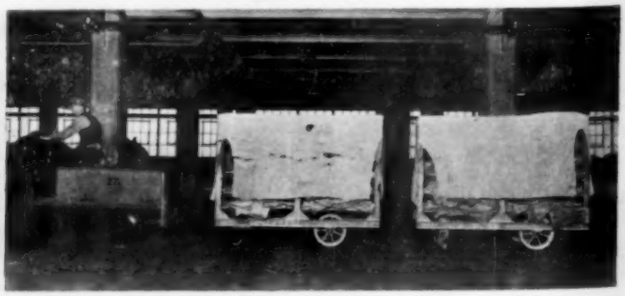
Centralization and Control of Equipment

Industrial-truck equipment throughout the factory is controlled and operated under one centralized authority. Without such unity of neutral centralization, each production department would maintain its own trucks and they would become a secondary issue, their real importance not being recognized. While one department would be struggling along with inadequate equipment, due to a sudden increase in production or a break-down in truck equipment, another department might have a surplus of such service due to a decrease in production or unexpected layoffs. In this way both departments would be operating at a loss. Still other departments would try to obtain more trucks than their quota, so as to have a surplus for a safety margin.

There is also a duplication of effort through the return of an empty truck after making a delivery. Centralized control, whose record depends absolutely upon quality of service and minimum of expense, will route deliveries so as to have a return load at all times. This also relieves congestion.

Such centralization of unit control was established to study and eliminate all waste effort, confusion, and friction between production departments relative to industrial-truck equipment. All electric and hand trucks are numbered, prefixed with a code letter. All truck equipment is divided into 44 classes, according to size and type. Electric trucks are classified in 13 codes, hand trucks in 22 codes, platform skids in 5 codes, and electric batteries in 4 codes. While the allocation of trucks is set up for each of the various production





Transporting Finished Tires and Compounded Rubber

departments, according to their production requirements, the allocation may be changed from time to time, either increasing or decreasing the number in the fleet.

Standardization of Equipment

Until recently the value of engineering service was not recognized in regard to industrial transportation equipment. In the past each department maintained its own idea of certain types and styles of trucks to perform the operations pertaining to its production, with the result that when a production department was discontinued or certain operations were eliminated in the process of manufacturing certain articles, such equipment became obsolete. The salvaging of this equipment, entirely or in part, gave the management the idea to study the needs of the plant's production as a whole and then design a type of truck chassis that would be interchangeable throughout the factory.

A standard type of running gear or chassis was designed with the utmost flexibility in steering and turning through narrow aisles and around sharp corners. This truck chassis could easily be equipped with various types of racks or bodies best suited to the needs of the different departments, and if production department or operation was discontinued, these superstructures could easily be removed at a small cost. The result of this investigation is that, instead of the multiplicity of sizes and types of trucks formerly in use—that is, from a variety of 49 types of one line of trucks—there now are but four types of truck chassis, with a number of interchangeable parts, which answer all the requirements of the original 49 types.

All industrial four-wheel trucks are equipped with standard couplers. Such flexibility enables operating the electric tractors in any industrial truck cycle.

Where material is consumed slowly, the platform-skid method of transportation is adopted. In the installation of the platform-skid method a standard height is maintained in order to obtain a flexible service unit, so that the transporting can be performed by either hand or electric lift truck. When it is necessary to move platform skids a short distance only, it is entirely satisfactory, as well as efficient and economical, to equip such platform skids with casters or wheels, to eliminate the necessity of waiting for the arrival of a supplier with a transveyor. The craftsman can then move the platform-skid load whenever necessary without the loss of time.

It has been found that properly selected electric trucks, powerful, compact, and the minimum in weight, are well adapted for certain types of transportation service, and a fleet of 73 electric power trucks is helping to keep down the cost of transportation. All electric-truck battery compartments are so designed and built that they will receive any style of battery that we employ. Such interchangeability of batteries allows the service of each electric truck for the 24 hours.

Inspection and Lubrication

Trucks are first inspected for condition before being lubricated; that is, all bolts are tightened, and those small miscellaneous repairs which are necessary to place a truck in first-class condition are made. A pressure lubricating method is standard equipment. Inasmuch as trucks are always equipped with some sort of a lubricating system, such as greasecups, oilwells, oilcups, etc., which in time become clogged with dirt and grease which has hardened due to certain conditions existing in the factory, not only has the pressure system of lubrication proved considerably more effective, but it is less expensive than the former method.

When lubrication is completed, the truck is given a thorough cleaning. All foreign substance is removed from casters, running wheels, and deck. All trucks are painted yearly.

A card index is maintained, recording the truck number, the number of the production department to which the truck was allotted, the date the truck was lubricated, and the date the truck was repaired. Such information affords an opportunity to investigate the reason why any particular piece of equipment must be repeatedly oiled or repaired.

Observance of industrial transportation equipment under actual service, relative to wearing qualities, length of service, and ease of operation, discloses many mechanical defects in the design.

Considerable experimental work has been done to determine the right type of wheel construction, especially the best width, as floor maintenance seems to be exceedingly high. The results of this investigation are found in the recent development of a satisfactory tire wheel for the industrial truck wheels and casters. It is gratifying to note the ease of motion while the truck is in operation and the absence of truck vibration.

A centralized truck-repair department has decreased the truck maintenance cost considerably, for as soon as a defect is noticed in a truck, the truck is immediately placed in the repair department for repairing or overhauling.

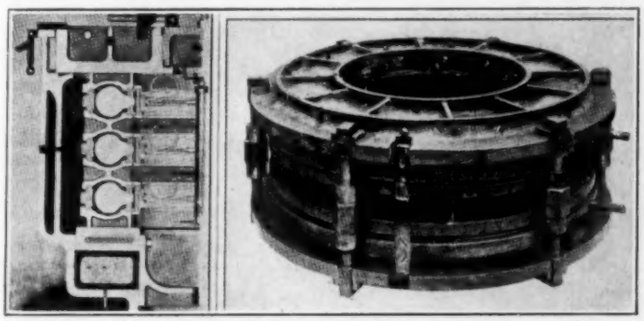
What has been accomplished may be seen from the evolution of transporting material by hand to conveyor. The progressive steps are:

A Hand.
B Two-wheel baggage trucks.
C Four-wheel flat-deck trucks.
D Hand lift truck and platform skids.
E Electric tractor and four-wheel flat-deck trucks.
F Electric transveyor and platform skids.
G Rearrangement of machines.
H Mechanical power conveyors.
I Force of gravity.
J Linking together machines into one unit.

Vulcanizer With Nesting Molds

AN UNIQUE arrangement for saving weight and space in vulcanizing equipment is shown by the Spencer-Smith vulcanizer and molds illustrated here. The following description was received from the designer, J. A. Spencer-Smith, Maristow House, Winnersh, Berks, England:

Although the illustration shows a nest of two molds, any number may be nested, but preferably three, so that they may be accommodated in the compress type vulcanizer. In this case the unit is assembled, inclusive of the inflation manifold, with the use of the quick action turnbuckle belts. The unit is lifted by electric hoist and deposited within the heater from an overhead rail.



Spencer-Smith Vulcanizer and Nested Molds

The table is pressed upwards against the molds and heater cover by compressed air, through the compression bag. The mold sets are in duplicate,—the moment one lot is cured, another set takes its place. The advantages of the watch-case vulcanizers were aimed at, as well as retaining the well known features of curing in open heat.

The molds are of steel construction throughout, each mold being practically held in suspension with an unusual allowance for the heating medium to surround the equipment in radiator fashion.

Advantages claimed for this equipment are lower initial costs, lower installation cost and a reduction in maintenance.

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EDITORIAL COMMENT

A Year of Free Rubber

WITH the beginning of this month, there came to an end the first year of unrestricted rubber production and marketing since the termination of the Stevenson Act. Crude rubber, for six years tied down by the arbitrary terms of price control legislation, has now experienced twelve months of unhampered freedom with only natural economic laws to dictate price regulation. And what has been the net result?

The price of crude rubber in the New York market on October 31, 1928, the day when British restriction officially came to a close, was 18¾ cents a pound. The price of the commodity on October 31, 1929, a year later, was also exactly 18¾ cents a pound. During the months between these dates there were, of course, a certain degree of fluctuation in quotations. With the fear of abnormally heavy shipments of accumulated rubber from Malayan plantations casting its shadow over the trade, the price sank temporarily during last November to as low as 17⅞ cents a pound. When it became apparent that the tremendous increase in American and foreign rubber consumption to keep pace with the automobile industry would absorb practically all of this "surplus" rubber, prices naturally sought higher levels, reaching a peak on February 26 of 26⅞ cents a pound. But, after this early enthusiasm had worn off and the tire industry saw that it would have to slow down and wait for consumer demand to catch up with its record breaking production, the price for the commodity slowly but steadily fell back to the point from which it had started with the first day of "free" rubber.

During the entire year since the abandonment of the Stevenson Act, the average spot closing price at New York has been 20.84 cents a pound. In view of the production cost figures announced by several rubber plantation companies before they became reluctant to give out such figures and in view of the profit statements and dividend payments made by those same companies, this can not be called an uneconomic price for crude rubber.

Other features attendant upon the dropping of restrictive measures have also stood out during the year. Estates have been able to hold down their production costs to levels heretofore thought impossible. Estates have been able to produce more rubber from the same acreage than was previously believed possible. Estates have through mergers and consolidations been able greatly to reduce their costs of marketing and distribution. Only the lifting of restriction has brought these things about, as well as eliminating the chance of prices fluctuating between 12 cents and $1.20 a pound in the same year.

The Stock Market

THE recent collapse in the stock market brought the shares of the domestic rubber manufacturing companies tumbling down along with the entire list, and while all the issues have come back from their extreme lows, the loss in the market value of rubber company securities since the first of the year can well be estimated at around a billion dollars. This unfortunate situation comes at a time when the rubber companies were just gaining a stride of confidence through the general prosperity which they have more or less enjoyed during the last year and were in turn gaining in the confidence of the investing public.

During the height of the collapse, these rubber company stocks dropped from 4 to 74 points. At these lowest levels some of the companies' securities were yielding 8 to 10 per cent. But it must be generally conceded that in a great many cases the extreme highs achieved during the year by some of these rubber stocks represented values so far out of line with earnings that they could not possibly have been maintained. It might even be supposed that the recent drops, coming as they did in a series of bearish movements upon the whole exchange list, were more gentle in their specific effect to the individual companies' standing than had the specific stocks fallen alone in a normal market.

The basic condition of the industry today is sound and most of the companies will show fairly estimable balance sheets at the end of the year, and taken by and large the present prices for their securities on the various exchanges today represent a fair value and in many cases an attractive inducement for the investor who is looking to the future. In the last analysis, that is the situation which is most desirable and sound for the industry. If rubber securities can remain at levels which will represent an attractive buy to the investing public, future flotations for refundings or for legitimate expansions in the industry are assured. While this temporary collapse has been a hard blow to the individual security holders, it may yet prove a benefit to the industry as a whole.

The RUBBER AGE

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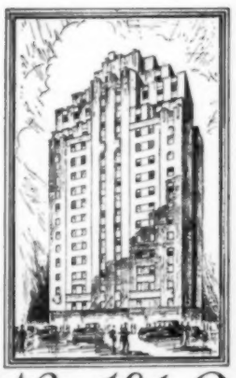

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NEAR BUSINESS, SHOPPING and THEATRE CENTERS

NEWS of the INDUSTRY

Financial—Business
Building Operations
Personals
New Products

RUBBER INDUSTRY SHOWS FALLING OFF FROM 1928

Industry throughout the country is just a shade more favorably situated than it was a year ago, but numerous individual industries, including the rubber manufacturing trade, show distinct recessions from their position last year and present a somewhat disturbing tone to the general picture, according to the annual trade survey of the National Association of Manufacturers, presented at its annual meeting on October 14.

Of the 23 industries covered by the report, 12 report gains that in some instances are slight and in other instances might be considered excellent advances. Three industries seem to have just about held their own, and eight industries, including rubber, chemicals, automobiles and accessories, show a shading off. The association report on the rubber industry is as follows:

Shows a falling off. Present conditions are reported excellent by 14 per cent; good by 29 per cent; fair by 43 per cent; poor by 14 per cent. This is a much worse showing than last year, as those reporting then classed business at that time, 43 per cent as excellent; 20 per cent good; 10 per cent fair and 4 per cent poor. None of the companies class the prospects for the winter as excellent; 57 per cent class them as good; 43 per cent fair, none as poor. Production compared with last fall is reported increased by 43 per cent, decreased by 57 per cent; sales quantities are reported increased by 60 per cent, decreased by 40 per cent; every company reports sales values as decreased; stocks on hand are low in 29 per cent of the reports, normal in 57 per cent, over in 14 per cent. Employment as compared with last fall has increased in 61 per cent of the companies and decreased in 29 per cent; 50 per cent of the companies report wage increases and a like percentage reports decreases; no labor shortage; no labor troubles.

GOODYEAR OF CANADA TO ELECT A CHAIRMAN

At the annual meeting of the Goodyear Tire & Rubber Company of Canada, shareholders will be asked to approve a resolution amending the by-laws to permit a chairman of the board. C. H. Carlisle is president and general manager of the company, but there has never been a chairman.

A resolution also will be presented to authorize directors to apply for supplementary letters patent reducing capital stock by the cancellation of 4.670 shares of no par common, held in trustee account. Another resolution proposed would permit the adoption of a pension plan and the creation of a pension fund.

SOFT RUBBER BALL OFFICIAL FOR POLO

A new ball for indoor polo, tried out in New York City in several games last winter, was adopted recently as the official ball for use in all tournaments of the future at the annual meeting of the Indoor Polo Association of the United States.

The new ball is made of a sponge rubber composition encased in a leather cover which has only one seam. The ball is the same size as the old ball, 4½ inches in diameter. The old ball was inflated. The Indoor Polo Association adopted the new ball after a long series of experiments in the interests of greater accuracy in hitting. The new ball is considered so much more accurate than the old that the association recommended to member clubs a smaller goal, ten feet instead of twelve feet, and proportionately smaller goals for smaller rings.

Kent Rubber Products to Build

The Kent Rubber Products Company, Ravenna, O., has awarded a contract for a two-story, 50 by 90 foot factory and office building to the P. L. Frank Construction Company of the same city. The cost of the structure is estimated at $40,000, according to J. Slater, manager of the company.

Alfred Hale to Expand

The Alfred Hale Rubber Company, Quincy, Mass., has awarded a contract for additions and alterations to its present rubber sole factory to Clark & Smith of the same city.

J. H. Connors Injured

J. H. Connors, general manager of the mechanical goods division of the B. F. Goodrich Company, was injured early this month when a taxicab in which he was riding collided with another car. He was taken to the Akron City Hospital unconscious and suffering from severe head lacerations and spent several days there before returning to his home. Mr. Connors only recently joined the Goodrich organization, having previously been president of the Republic Rubber Company, Youngstown, O.

TUSCAN RUBBER FACTORY IS DESTROYED BY FIRE

The plants of the Tuscan Tire & Rubber Company and the Pretty-Schaefer Rubber Company at Carrollton, O., were both destroyed by fire on October 29 with a loss estimated at $150,000. The loss is partially covered by insurance, and plans are already under way to rebuild the two factories. A fire wall and efficient work on the part of the village fire department augmented by workers in the two plants prevented the destruction of another rubber factory nearby.

The Tuscan Tire & Rubber Company was established in 1910 and has manufactured tires and tubes and druggists' sundries. Its brands included Tuscan, Buckskin, Carroll and Carrollton cord tires and tubes.

AKRON RUBBER SHIPPED BY WATER FROM NEW YORK

A new shipping venture which may revolutionize the method of bringing crude rubber to Akron was successfully initiated on October 29 with the arrival at Cleveland of the motorship Empire State from New York with a cargo of 450 tons of rubber. This initial shipment was hauled from Cleveland to Akron in three trips by a fleet of 36 motor trucks and 75 semi-trailers.

The Empire State, unique among freight carriers on the Great Lakes, has been operating on the Cleveland-New York run all summer via Lake Erie, the Welland Canal, Lake Ontario to Ogdensburg, thence, via the New York State barge canal to Albany, and down the Hudson to New York, making the trip in five and one-half days.

AJAX SALES IN 9 MONTHS ARE AHEAD OF ALL 1928

Unit sales of tires to dealers for the first nine months of 1929 of the Ajax Rubber Company were greater than for the entire year of 1928, according to H. L. McClaren, president. Sales to dealers in the first nine months of 1929 showed a gain of 24.13 per cent in units and 20.74 per cent in dollar volume over the corresponding period of 1928.

In the first eight months of 1929, total Ajax sales in units increased 21.23 per cent over the corresponding period of 1928, as against a gain of 3.40 per cent for the entire industry. Ajax sales in August were 7.44 per cent in excess of July and 13.96 per cent ahead of August, 1928. Mr. McClaren states that September sales were greater than those of August, and that October sales are expected to equal and possibly surpass September.

General Fleet Finishes Air Tour

THE General Tire & Rubber Company fleet of airplanes returned to Akron on October 14, following what is believed to have been the longest commercial flight ever made. The fleet, under the command of Lieutenant A. C. Lyburger, left Akron in June for a tour of the United States in the interest of commercial flying and covered nearly 20,000 miles since that time.

The six airplanes used in the tour were resold last month to the General Airplane Corporation, Buffalo, N. Y., in accordance with a provision made at the time of their purchase. The six aviators, all of whom were army men from Selfridge Field, were honored with a banquet on October 18 and presented with wrist watches as tokens of appreciation for their service as General pilots. They will all take positions with the sales force of the tire company.

Several new devices developed by the General Tire & Rubber Company to increase the safety factor in aviation were tested out during the tour. These include various pneumatic shields, motor mountings and other parts of rubber designed to make planes more durable and airworthy by eliminating the effects of vibration and shock on vital parts. W. O'Neil, president of the General company, has stated that "The day is coming when airplanes can be made to bounce instead of cracking up when they are forced to land," and his company is still working on new devices toward that end.

The pilots are shown in the above photograph with Orville Wright at his Dayton, O., laboratory.

GOODYEAR OF CALIFORNIA MAKES 15,000,000th TIRE

The Goodyear Tire & Rubber Company of California turned out its 15,000,000th tire in the latter part of last month. The company's 14,000,000th tire was produced in June of this year, and the plant has been averaging approximately 13,500 tires and tubes daily for practically the entire year.

The factory now consumes about 17,000 tons of crude rubber annually and 32,000 bales of raw staple cotton. Goodyear of California at the present time employs 3,200 persons, with an annual payroll of more than $5,000,000.

Carrier Opens Dallas Office

The Carrier Engineering Corporation, Newark, N. J., manufacturer of air conditioning systems, has announced the opening of a permanent engineering and sales office and shop at 2706 Commerce Street, Dallas, Tex. For some years the company has been engaged in a succession of extensive air conditioning installations in public and industrial buildings in the southwest, and Thomas M. Cunningham, who has supervised many of the installations in Texas, is manager of the new office. William Moler, a native of Texas, with a background of experience in the home office of the company and in the Los Angeles and Chicago branches, will be associated with Mr. Cunningham.

FIRESTONE FINANCE PLAN VOTED BY STOCKHOLDERS

Stockholders of the Firestone Tire & Rubber Company at a special meeting on October 29 approved an increase in authorized common stock from 2,500,000 $10 par shares to 3,500,000 shares of $10 par common. They also authorized the creation of 1,000,000 shares of $100 par cumulative preferred stock, 600,000 shares of which will be publicly offered as previously announced.

Harvey S. Firestone, president of the company, in addressing the shareholders, said, "The company is closing a very successful year, and the outlook for next year is exceedingly good."

Goodrich Footwear Output

The B. F. Goodrich Company last month reported that footwear production is being maintained at capacity rate and that approximately 50,000 pairs of all styles are being manufactured at its plants daily. The Goodrich company expects to maintain this rate for at least two months, when the peak of winter shipments will be reached. Production will then taper off until next summer's orders for future requirements begin to arrive.

New Color is Announced

The Dyestuffs Department of E. I. du Pont de Nemours & Company has announced an addition to its line of copper free sulfur colors, under the name of Sulfogene Yellow GGCF.

NAT'L RUBBER MACHINERY PROFIT REDUCED SHARPLY

Net profit of National Rubber Machinery Company for quarter ended September 30, 1929, was $42,834 after taxes and charges, equal to 38 cents a share on 111,580 shares of stock, comparing with $113,409 or 1.01 a share in same quarter of 1928.

For nine months ended September 30, net profit totaled $349,969 after charges and federal taxes, equal to $3.13 a share on 111,580 shares of stock against $326,869 or $2.92 a share in first nine months of 1928.

Holders of first mortgage convertible 6% bonds of National Rubber Machinery Company issued under and secured by mortgage and deed of trust dated July 1, 1928, have been notified by Stanley W. Harris, president, that company has elected to redeem on November 8, 1929, otherwise than by use of the sinking fund, all bonds of this issue outstanding on that date. The bonds will be redeemed at their principal amount together with a premium of 5% and accrued interest to the date of redemption at the office of Guaranty Trust Company of New York. The bonds are convertible into stock of the company until and including November 8, 1929. The original issue of these bonds was $1,350,000, of which there are outstanding $612,000.

Scrap Rubber Company Formed

The Robinson Scrap Rubber Company, West Orange, N. J., has been incorporated at Trenton, the state capital, to deal in scrap rubber. The firm has been capitalized at $50,000, and the incorporators are Robert W. Sims, George W. Robinson and Grace M. Robinson.

Rubber Company Stocks Break

New lows were made by practically every rubber company stock issue in the recent securities market crash. Trading in the new Firestone common stock opened on the New York Curb at 41 as against its preferred warrant purchase price of 55. Price quotations for the shares of leading rubber companies on November 2 and the high and low figures for the year are as follows:

	Last Price		High	Low
	Nov. 4	Oct. 21	—1929—	
Ajax	3	3⅝	11¼	2½
Falls	—	—	11⅜	4
Faultless	36	—	45	30
Firestone	41	—	41½	41
do. new 6% pfd.	98¾	98¾	98¾	98¾
Fisk	5⅜	6¾	20¼	3½
do. 1st pfd.	20⅛	32¾	72½	15
General	—	264	298	236
do. pfd.	—	93½	102	92
Goodrich	55	65	105¾	42
do. pfd.	105	106	115⅛	105
Goodyear Com.	73	96⅞	154½	60
do. pr. pfd.	95⅞	99½	104⅞	94
India	21	—	73	21
Intercontinental	6¼	8¾	14¼	5⅝
Kelly Springfield	6¾	7½	24	4
do. 1st pfd.	35	40	100	30
Lee	8	9¾	25	5
Miller	9⅛	10¾	28¾	5⅛
do. pfd.	35	40	83	30
Mohawk	14	20	66	12
do. pfd.	—	—	90½	78
Norwalk	1⅝	1⅜	6½	⅝
Pirelli	52¾	56	68	43¼
Seiberling	—	24	65	15
do. pfd.	—	—	107⅞	90
U. S. Rubber	32	50½	65	15
do. pfd.	59½	73½	92½	58

Names in the News

JAMES D. TEW, president of the B. F. Goodrich Company, will be a speaker at the first Ohio Management Conference, to be held at Columbus on November 20 under the auspices of associations of bankers, manufacturers and retailers. His subject will be "The Manufacturer's Responsibility to His Dealers."

W. R. HUCKS, in charge of compounding and laboratory development work at the Pacific Goodrich Rubber Company, Los Angeles, Cal., is attending a two-week technical conference at the Akron plant of the B. F. Goodrich Company. This session opened on November 1 and will continue to November 14.

DR. A. A. SOMERVILLE has been appointed to the chairmanship of the physical testing committee of the Rubber Division, American Chemical Society, succeeding DR. W. A. GIBBONS, who recently resigned. In addition to Dr. Somerville, the committee will in the future be composed of A. W. CARPENTER, D. F. CRANOR, E. W. FULLER, O. M. HAYDEN, T. M. KNOWLAND, N. MADGE, C. R. PARK, N. A. SHEPARD, W. L. STURTEVANT and P. L. WORMELEY.

F. B. DAVIS, JR., president, ERNEST HOPKINSON, vice-president, and other officials of the United States Rubber Company were guests of honor October 30 at a dinner given by the Detroit Board of Commerce. WILLIAM J. GRAY, chairman of the board of the First National Bank, was toastmaster, and the committee in charge of the banquet was headed by MAYOR JOHN C. LODGE.

P. W. LITCHFIELD, president of the Goodyear Tire & Rubber Company, arrived in New York October 28 on the S. S. California following a two months' business trip through South America, during which he investigated possible sites for a branch tire factory for his company. He returned to Akron in time for the ring laying ceremony for the first navy dirigible to be built by the Goodyear-Zeppelin Corporation.

ART H. MASSEY, general sales manager of the Combination Rubber Company, Trenton, N. J., is spending three weeks traveling through the middle and northwest in the interests of his company.

CATALPO
for
Mechanicals

L. F. ANIVITTI, sales manager for the Dunlop Rubber Company in Australia since 1927, has been appointed general manager of the new Dunlop-Perdrian Rubber Company, Ltd., in New South Wales and Queensland. A. CHARLESWORTH has been named as assistant sales director for the Dunlop-Perdriau Company.

N. N. ALSPACH of the Goodyear Industrial University, employe training school of the Goodyear Tire & Rubber Company, spoke on the subject of lighter than air craft before a luncheon meeting of the members of the Kiwanis Club of Kent, O., last month at the Hotel Franklin in that city.

F. A. SEIBERLING, president of the Seiberling Rubber Company, and WILLIAM O'NEIL, president of the General Tire & Rubber Company, were among the speakers at a banquet at the Portage Country Club on October 23 in honor of CHARLES L. KNIGHT, who has completed 25 years of association with the Akron *Beacon Journal*, of which he is publisher. Other speakers included CONGRESSMAN FRANCIS SEIBERLING, a director of the Goodyear Tire & Rubber Company; CHARLES W. SEIBERLING, vice-president of the Seiberling Rubber Company; and former United States Senator CHARLES DICK.

B. L. TRILLICH has relinquished the active management and control of the Cooper Corporation, Cincinnati, and Findlay, O., to devote his entire time to other activities. It is also announced that E. V. HENNECKE, who has occupied the position of vice-president in charge of sales, has also resigned and will in the future associate himself with certain other developments under the direction of Mr. Trillich.

H. H. REPLOGLE, sales manager of the rubber chemicals section of E. I. du Pont de Nemours & Company, who held a similar position with the Grasselli Chemical Company before it was acquired by du Pont, has resigned to join the executive staff of the Sylvania Industrial Corporation, New York City, manufacturers of viscose products, where he will again be associated with DR. ROGER N. WALLACH, formerly vice-president of the Grasselli Dyestuffs Corporation. On November 1, E. R. BRIDGWATER succeeded Mr. Replogle as sales manager of the rubber chemicals section of E. I. du Pont de Nemours & Company, and C. A. BARTLE, salesman for the Chicago office territory, became assistant sales manager of the same section.

SIR ERIC GEDDES and SIR GEORGE BEHARRELL recently celebrated the seventh anniversary of their connection with the Dunlop Rubber Company, Ltd., as chairman and managing director, respectively. Each was presented with appropriate souvenirs by the directors of the company and the directors of associated companies, accompanied by short addresses for the occasion.

IONEL MUNTEANU, of the export department of the Miller Rubber Company, has left Akron for a business trip through Continental Europe and the Mediterranean countries. He will be gone several months and expects to make connections for Miller in several sections not now served by its sales organization.

DR. WOLFGANG KLEMPERER, aeronautic engineer of the Goodyear-Zeppelin Corporation, was awarded the Cleveland Press Trophy for the most efficient handling of a glider at the National Glider Contest in September. The award was made at a joint dinner of the Cleveland and Akron Glider Clubs on October 26 and was given him for his heroic attempt to fly the large Darmstad glider from Akron to Cleveland tied to a Goodyear blimp. Dr. Klemperer on October 7 set what is believed to be a glider record for this country by remaining aloft for a full hour and travelling about 18 miles in a flight near Uniontown, Pa.

GEORGE B. DRYDEN, president of the Dryden Rubber Company, Evanston, Ill., and his son, EASTMAN RRYDEN, sailed from New York on November 2, bound for Africa, where they plan to spend six months hunting big game with MR. AND MRS. MARTIN JOHNSON, African explorers and hunters.

FRANK W. LOVEJOY, business analyst and a member of the staff of the Vacuum Oil Company, was the principal speaker before a session of salesmen of the India Tire & Rubber Company on October 16.

WILLIAM N. HUDSON, formerly of Canton, O., has joined the Goodyear Tire & Rubber Company to act as pilot of the new Curtiss Robin airplane which will be used on business trips by Goodyear officials and in tests of Goodyear aeronautical products. Pilot Hudson has been flying since 1920 and was until recently employed at the McKinley Airport in Canton.

W. G. LERCH, former production superintendent of the India Tire & Rubber Company, has been appointed to a similar position in the factory of the Falls Rubber Company, Cuyahoga Falls, O. It is also reported that Mr. Lerch will shortly be named as a director of the Falls company.

CATALPO
for
Footwear

Rubber News Around the World

WATERPROOF COAT TRADE IS ACTIVE IN BRITAIN

The rubber rainwear trade is now brisk and active again in England. Producers are very busy, and in some cases as much as five to six weeks behind with deliveries, and garment makers are fully engaged. However, the curious feature of the trade is that activity is almost entirely concerned with one sort of proofing—the fleecy-lined surface proof, which now accounts for the bulk of the macintosh trade. It is difficult to account for the sudden popularity of this cloth and proofing, which is in certain respects unsatisfactory, unless it be its resemblance to the leather-coat when made up into a garment. The coats produced are mostly in cheap qualities and machine-made.

In the hand-made trade there is an appreciable demand for double-texture indianas and double-texture cotton cashmeres in fawn for both men's and women's garments, but no large orders for such goods have yet been placed.

A rubber-proofed imitation leather coat has recently been placed on the market. The cloth differs from the ordinary types of imitation leather proofings in that it has a grained surface and a dull instead of the usual polished surface. Another type of garment which has lately been placed on the market is the imitation lightweight coat. It is made of a low quality sheeting, the proof being non-guaranteed, and it retails as low as 5s. ($1.25) per garment. The export trade is very dull, but the mechanical trade is reasonably busy. Some manufacturers are now producing rubber shoes and plimsolls for next spring and summer for stock.

Rubber Institution Meetings

Dr. W. J. S. Naunton will speak on "Anti-oxidants" before the Scottish Section of the Institution of the Rubber Industry at Glasgow on November 14. On November 18, H. Eric Miller will address the London Section at the Engineers' Club, London, on "The Outlook in the Rubber Industry." The meeting of the Birmingham Section at the Grand Hotel, Birmingham, on November 20 will hear L. J. Mountford on "Machine Testing of Pneumatic Covers" and E. F. Powell on "Some Notes on Curing Conditions." The Manchester Section will meet on November 21 to hear R. Defries on "Unburstable Balls."

Golf Ball Imports Drop

Imports of golf balls into the United States during September numbered 119,440, as compared with 370,992 during August and with 264,706 during September, 1928. The value of the September imports was $39,226, a unit value of 32.8 cents per ball as against 32.5 cents in August and 32.9 cents in September, 1928.

I. R. I. Hears Ebonite Talk

Members of the Manchester Section of the Institution of the Rubber Industry, meeting in that city on October 24, listened to S. Riding, A. I. R. I. (Sc.) discuss "Some Notes on Ebonite." The next meeting of the section is scheduled for November 21.

TAX PROBLEM HOLDS UP GOODYEAR IN ARGENTINA

A feasible location for a South American factory for the Goodyear Tire & Rubber Company has been located in a province close to Buenos Aires, but local taxation problems threaten to delay the construction of a plant there, according to a statement made by P. W. Litchfield, president, on his return from Argentina. Outside of the metropolitan area of Buenos Aires itself, it appears that the provinces are permitted to impose an excise tax.

"If, at the next session of the Argentine congress, this objectionable legislation is removed or modified," Mr. Litchfield said, "it is probable that Goodyear will immediately announce the selection of a site for its South American plant." It is believed that the site in question is near La Plata and that a $7,000,000 factory will be erected there as soon as local tax questions are cleared up.

CONTINENTAL DEVELOPS NEW VULCANIZING PRESS

The Continental Caoutchouc & Guttapercha Co., of Hanover, is now using in the manufacture of rubber floor coverings and conveyor belt a press with pressure cylinders, by means of which a total pressure of up to 8,200,000 kilograms can be exerted. The upper and lower tables are each in one piece and are made of cast steel. The lower table has a weight of 48,000 kilograms.

In order to prevent the belts stretching after manufacture they are stretched, before vulcanizing, with a force up to 70,000 kilograms by means of a hydraulically operated device. For removing the belts from the lower table after vulcanization a special apparatus with six cylinders is employed, which has to overcome a suction force of up to 220,000 kilograms.

The hydraulic plant employs pistonless compressed-air accumulators. The specific surface pressure for the vulcanizing process can be adjusted by means of a pressure regulator. The presses are hydraulically controlled from three observation stations, while the temperature of the heating plates is governed by an electric measuring apparatus. When required for vulcanizing floor coverings of large widths and lengths, the press can be equipped with special apparatus.

G. COLLEY has been appointed by the Goodyear Tyre & Rubber Company, Ltd., as sales representative for the English counties of Norfolk and Suffolk. He succeeds F. W. OSBOURN, who recently resigned.

SOFT RUBBER EXPORTS TO SOUTH AMERICA HIGHER

Exports of soft rubber sundries and specialties from the United States to South American markets have increased steadily in recent years, a trade bulletin just issued by the Department of Commerce reveals. In 1928 the total value of these exports amounted to $664,000 which was an increase of about 8 per cent over the previous year's figure. Argentina is the outstanding market in this area, followed in the order named by Brazil, Chile, Uruguay and Venezuela.

American shipments of druggist's rubber sundries, according to the report, increased from a value of $121,017 in 1927 to $140,926 in 1928 or by 16 per cent. Rubber gloves are the most important item in this class, increasing from a value of $43,719 in 1927 to $57,240 in 1928. Exports of rubber specialties advanced from a value of $494,134 in 1927 to $523,225 in 1928 or by 6 per cent. Rubber balloons comprised 25 per cent of the total value and rubber bands and erasers 18 per cent.

Competition from local industries, the bulletin declares, is not great, although several of the countries are experimenting with the manufacture of rubber products of one form or another. Foremost in this endeavor is Argentina, where production of rubber sundries and specialties has reached a fair stage of development. Protected by customs duties, the Argentine industry now offers competition with foreign manufacturers, competing on a quality basis and with lower prices.

Foreign competition, which American manufacturers have to meet in the South American area comes chiefly from Great Britain, Germany and France. On the west coast, especially in Chile and Peru, Japanese rubber goods are popular with the masses, chiefly because of their low price.

RAPSON OF AUSTRALIA SHOWS LOSS FOR YEAR

A report just issued by the Rapson Tire & Rubber Company (Australia), Ltd., shows a net loss of $135,465 for the year ended June 30, 1929, and with a loss of $13,385 brought forward, there is a debit of $48,850.

Production of tires commenced toward the end of November, 1928, and continued until April, when the factory at Launcetom, Tasmania, was so severely flooded that a total stoppage of several weeks and decreased production for a further period resulted. Direct loss due to the flood was $54,120. Notwithstanding the loss, the directors are hopeful as to the future. Production is steadily increasing, and cost of production decreasing.

During June and July, the company was producing at a satisfactory rate of profit. The Treasurer of Tasmania has executed a guarantee as regards preference shares, the guarantee starting as from April 2 last.

Rubber Goods and Specialties

Firestone Storage Battery

The automotive storage batteries added to the line of the Firestone Tire & Rubber Company, Akron, O., recently are said to give ample starting capacity at low temperature operation and at the same time to give long life in service. The tensile strength of the Firestone hard rubber case

is almost twice that of a composition case. There is no chemical leakage between cells, and it is not affected mechanically or electrically by operating conditions. A specially designed soft rubber bushing is pressed into the well of the cover through which the post extends, preventing acid leakage and absorbing shocks. Other features are oversized plates, selected Port Orford cedar separators, specially designed cell connectors and leak-proof compound.

Seiberling Camel Battery

To round out its line of automotive products, the Seiberling Rubber Company, Akron, O., is now distributing through its tire dealers three lines of automobile storage batteries, the leader of which is designated as the "Camel." This battery is of the semi-liquid type and requires re-watering only

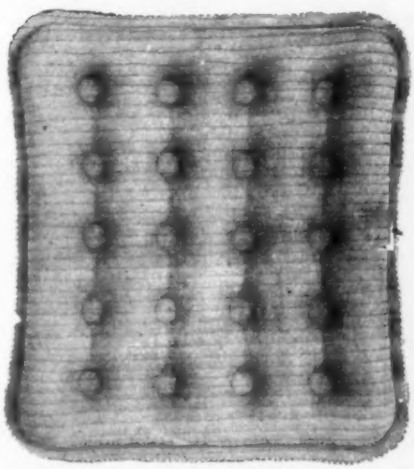
once in 90 days. In preliminary tests, it is said to have been run 20,000 miles without re-watering. Its plates are protected by semi-solid electrolyte against shredding and are practically invulnerable to burning. No acid can form to corrode terminals or ruin upholstery and clothing, according to the manufacturer. A low price wet battery and an intermediate price battery will complete the Seiberling line.

Sunny Sam Balloon

Modernistic designs are a new feature on toy balloons, having become popular only within recent months. An example of this type is the new Sunny Sam balloon of the Oak Rubber Company, Ravenna, O., which is being offered in both round and airship styles. The variegated patterns on these balloons are in the brightest colors and give them a very **flashy appearance.**

Ez-e-cT Air Pocket Cushion

The Rubber Patents Corporation, Grand Rapids, Mich., is now producing a new pneumatic seat under the name of the Ez-e-cT air pocket cushion. This is equipped with a



flexible, non-tying, non-metallic valve, by means of which it can be inflated or deflated quickly and easily and in the latter form carried in the pocket. The rubber valve used is a patented item of this company, which is also used on its sports balls. The cushion comes in two sizes, one round, 12 inches in diameter, the other square, 15½ by 16½ inches.

"Gra-Grip" Basketball Shoe

The Beacon Falls Rubber Shoe Company, Beacon Falls, Conn., is featuring in its fall line the Top Notch "Gra-Grip" basketball shoe, advertised as the fastest and most scientifically constructed shoe of its type ever made by the company. The sole is of buffed crepe with a very narrow shank

and the upper and lining are of brown duck. Other features are a double toe cap, a comfortable toe pattern, a four-bar toe bumper guard, an extra long and thick sponge cushion between the Korxole insole and the comfortable sox lining, a full back stay, an arch support stay, and special ventilating eyelets. The manufacturer also makes "Gym-Grips" in an athletic cut.

New British Casing

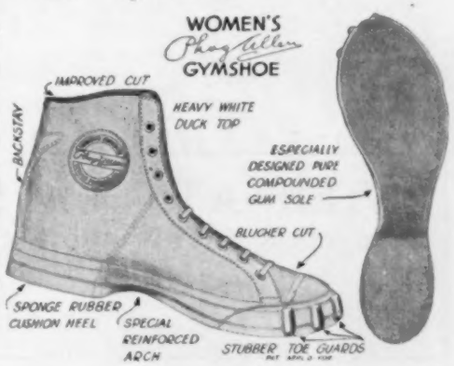
The cord or other textile foundation of a tire casing recently patented by W. T. Caddy of Bognor and D. Doig of London, is reinforced by ribbons of intermeshed wire helices connected, as by staples, to form bands which are embodied in rubber and enclosed in fabric casings.

Rubber Vehicle Upholstery

Material for forming seats of vehicles, cycles, furniture, etc., recently patented by the Dunlop Rubber Company and A. E. Harris, consists of rubber or a rubber containing compound having imbedded therein resilient wire members of spring-like formation disposed parallel to the surface of the material and spaced from one another or united only at intervals.

Servus "Phog" Allen Gymshoe

Designed by Dr. Forrest C. (Phog) Allen, director of athletics at the University of Kansas, a new athletic shoe for women has been introduced by the Servus Rubber Company, Rock Island, Ill., under the name of the "Phog" Allen Gymshoe. The upper is of white duck with white trimming and foxing, and the sole is of tough yet pliable red compound gem rubber. The toe, which is made with a Blucher cut, has white stubber toe guards and a white toe cap. The heel is narrow and snug fitting, with a thick sponge rubber cushion heel seat that raises the wearer's heel high enough to practically eliminate strain.



Current Crude Rubber Items

DUNLOP RUBBER COMPANY EXPANDING PLANTATIONS

Two million young rubber trees are now being planted in the Dunlop plantations in the Federated Malay States, section by section, as the heavy tropical jungle is cleared and its soil prepared over an area of 16 square miles. In ten years' time, it is expected that the new trees will yield an annual crop of 5,000 tons of rubber. At present, 8,500 tons of rubber a year are being tapped from 4,000,000 trees.

Every other day the trees are tapped and, as each cup receives an average of only one-half ounce of dry rubber daily, between 600,000,000 and 700,000,000 cupfuls of it have to be collected in the course of twelve months. Early next year the jungle is to be tackled over a further 16 miles of territory. Dunlop's complete holdings in Malaya are more than 125 miles in extent. One-third of the native workers employed are Chinese, but the bulk of them are Tamil, especially recruited in Southern India. Temples for their worship are built by the Dunlop organization, which also provides houses and hospitals for them, schools for their children, and rice for their food at cost price.

Golf courses have been laid down for the European staff, whose Rugby football team is making a bid for the championship of Malaya.

Rubber Acreage in Straits

Official statistics give the acreage planted in rubber in the Straits Settlements at the end of 1928 as 337,000 acres, of which the estimated tappable area is 302,000 acres, according to a cable received by the Department of Commerce on October 18. Local opinion is beginning to feel that total Malayan 1929 production rate continues to be maintained.

Synthetic Rubber Problem Is "Solved" By Britishers

Following upon the experiments of the Germans and the Swiss, the last word on the subject of synthetic rubber has come from England, the mother of the plantation rubber industry. The British Patent Office Journal on October 16 printed a digest of a method for producing a rubber substitute devised by J. W. Mounsey, W. T. Galbraith, and H. G. Bailey, all of Godalming, Surrey, which is unlike all other formulas previously advanced. The patent specification (No. 317,814, Class 70) is as follows:

Plastic compositions containing starch, etc.—A composition resembling rubber is made by mixing 60 parts of seaweed treated with 2 per cent of hydrochloric acid and washed with alcohol, with 60 parts of candleweed, desert milkweed, cactus juice, manila gum, copal gum, Arabic gum, gutta horfoot, Indian hemp gum, glue, fish oil, sunflower oil, bastard gum, shellac, neen insect gum, cativo gum, canoe gum, sharks eggs, gum chicle, balata, or mixtures of these. This mixture is added to an equal quantity of starch fermented with granulobacter butylicus, and bacillus orthobutylicus. The mixture is cooled, and 5 per cent of resin or fish oil, and 15 parts of petroleum waste, petrol, benzol, alcohol, and a solution of sulphur are added. After 24 hours 3 parts of casein in ammonia are mixed in and the whole is heated to 100° C., cooled to 35° C.; milk of lime is added and precipitated with carbon dioxide; 1 part of oil is added and the composition is heated to 120° C

TAN KAH KEE ESTATES SOLD TO NEW COMPANY

A new rubber company has been formed in London under the name of Rubber Estates of Malaya, Ltd., the principal interests being the Java United Plantations, the Anglo-Dutch Plantations, and Francis Peek & Company. This new company has a capital of £400,000 in shares of £1 each, and has bought the plantations of Tan Kah Kee near Kota Tinggi, Johore, for a price of £344,226.

The transaction went through the hands of the W. D. Syndicate, Ltd., Singapore, which paid the original vendor £306,133 and one of the local promoters a fee of £3,061. The total planted acreage amounts to about 6,400 acres, which cost the company approximately £53.16s per planted acre.

CEYLON CENSUS SHOWS 533,652 ACRES OF RUBBER

The latest census of rubber in Ceylon states that 533,652 acres are planted with rubber. Of this total, about 52 per cent is owned or controlled by British European companies, while 47 per cent is owned or controlled by Ceylonese. Less than one-tenth of one per cent is owned or controlled by non-British Europeans.

There are about 5,000 estates of over ten acres in extent. On estates of over ten acres, 54,432 acres have been planted since 1920, and 29,505 acres were planted in 1926 and 1927. It is estimated that 201,602 acres planted in rubber are in trees of over 19 years' growth. Members of the Rubber Growers' Association own 188,303 acres, or about 35 per cent of the entire acreage.

Rubber Plantations Expand

Two more rubber plantation undertakings in the Federated Malay States have announced enlargements. The Chersonese Estates announce that negotiations are in progress for the purchase of an adjoining property. This purchase will not involve the issue of more stock to the stockholders. An announcement in similar terms has also been made by the Klabang Rubber Co.

The board of governors of the Rubber Exchange of New York has granted corporation privileges to N. W. Diamond & Company, Inc., and to Keith Bon & Company, Inc., both of New York City.

Closing Prices on Rubber Exchange of New York, Inc.

FROM OCTOBER 21 TO NOVEMBER 2, 1929

		Spot	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Sales*
Oct.	21	19.60	19.60	20.00	20.20	20.40	20.60	20.90	21.10	21.30	21.40	21.60	21.80	——	279
	22	19.40	19.60	20.00	20.10	20.40	20.70	20.90	21.10	21.20	21.40	21.50	21.70	——	445
	23	19.20	19.30	19.60	19.70	20.10	20.30	20.50	20.70	20.90	21.00	21.20	21.40	——	321
	24	19.00	19.10	19.40	19.60	19.80	20.00	20.20	20.40	20.60	20.80	21.00	21.20	——	779
	25	18.80	18.80	19.20	19.40	19.70	19.80	20.10	20.20	20.40	20.60	20.70	20.80	——	395
	26	18.70	18.70	19.10	19.30	19.60	19.80	20.00	20.20	20.30	20.50	20.60	20.70	——	246
	28	18.20	18.20	18.50	18.80	19.00	19.20	19.40	19.60	19.70	19.90	20.00	20.10	——	739
	29	18.10	18.10	18.40	18.60	18.90	19.10	19.30	19.50	19.60	19.70	19.90	20.00	——	890
	30	18.30	18.30	18.60	18.80	19.10	19.30	19.50	19.60	19.70	19.90	20.00	20.10	——	639
	31	18.30	18.30	18.60	18.80	19.10	19.30	19.50	19.60	19.70	19.70	19.90	20.00	——	461
Nov.	1	17.50	17.50	17.80	18.10	18.40	18.60	18.70	18.80	19.00	19.20	19.40	19.50	19.70	1,084
	2	17.70	17.70	18.00	18.30	18.50	18.70	18.90	19.00	19.20	19.30	19.50	19.60	19.80	140

*In lots of 2½ tons each

INTERNATIONAL PULP CO., *41 Park Row, New York, N. Y.*
SOLE PRODUCERS OF PURE **ASBESTINE** SPECIALLY PREPARED FOR USE IN RUBBER
Covered and Protected by Letters Patent Registered at U. S. Patent Office, Washington, D. C.
LIBERAL WORKING SAMPLE FURNISHED FREE

William S. Kelley, Sr.

William S. Kelley, Sr., an associate of the late Dr. B. F. Goodrich in the early 80's in the struggle to perfect a high pressure pneumatic tire for bicycle wheels, died at Essex Falls, N. J., on October 15.

As an associate of the H. B. Smith Machine Company at Smithville, N. J., Mr. Kelley worked until his retirement two years ago. The Smith people are bicycle manufacturers and are said to have been the first concern to put a pneumatic tire on the market.

In addition to aiding in the perfection of the pneumatic tire, Mr. Kelley is said to have brought out a tire inflation valve, the basic principle of which still is the foundation on which all valves are constructed.

During the days when technicians were struggling to perfect a pneumatic tire—or anything which could absorb the shock at the source, instead of in the springs—Mr. Kelley made frequent trips to Akron to consult with Mr. Goodrich.

James W. Carnahan

James W. Carnahan, former sales manager of the Falls Rubber Company, Cuyahoga Falls, O., was found dead in his room at the Franklin Hotel, Kent, O., on the evening of October 19. A lifelong resident of Cuyahoga Falls, he was 45 years old at the time of his death.

Mr. Carnahan had worked with the Falls Rubber Company for 16 years, acting as sales manager during a part of that time. Six years ago he was elected a councilman in Cuyahoga Falls and served two years.

He is survived by Mrs. Ida Carnahan and one daughter, Miss Isabel Carnahan.

Frank Tenney

Frank Tenney, a director of the Electric Hose & Rubber Company, and secretary of the Pennsylvania Steel Company before its merger with the Bethlehem Steel Corporation, died suddenly on October 5 while playing golf near Philadelphia. He had retired from active business following the steel merger and resided at Haverford, Pa.

Delmar E. Root

Delmar E. Root, mechanical engineer at the B. F. Goodrich Company, died suddenly of heart disease on October 22. He was ill but an hour before his death. A lifelong resident of Akron, Mr. Root was 44 years old at the time he was stricken.

He had been connected with the B. F. Goodrich Company for the last two years, but had also worked there for 10 years at a previous period.

John J. Quinn

John J. Quinn, assistant buyer of crude rubber for the Goodyear Orient Company, and former resident of Akron, O., died October 28 at Singapore where he had been stationed for the last six years. He was 38 years old at the time of his death, which resulted from inflammatory rheumatism.

Mr. Quinn was a native of Boston, coming to Akron about 15 years ago to become associated with the Goodyear Tire & Rubber Company. Prior to taking up his duties at Singapore, he was associated with the work at the California branch of the company at the time of its establishment.

His body has been shipped from Singapore and will arrive about December 10 at Boston where burial will be made.

Alfred B. Peacock

Alfred B. Peacock, manager of the mileage contract department of the B. F. Goodrich Company, died at his home in Akron on October 23 after an attack of pneumonia. He was 39 years old.

Mr. Peacock had formerly established sales depots in the Far East for a motor car company. He was graduated from Amherst College and was a member of the Masonic Lodge. His widow and two children survive.

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Frictions

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GOODYEAR OF CANADA INSURES ITS EMPLOYES

One of the largest industrial retirement to be underwritten in the Dominion of Canada by a life insurance company has been adopted by the Goodyear Tire & Rubber Company of Canada, Ltd., of New Toronto, Ont. It affects approximately two thousand men and women employes in both New Toronto and Bowmanville, Ont. Announcement of the plan was made by C. H. Carlisle, president and general manager of the Goodyear company.

Liberal in its provisions throughout, the plan has been arranged to encourage employes to increase their benefits by making individual contributions to the retirement plan, which is being underwritten by the Metropolitan Life Insurance Company. While the Goodyear company, at its own expense, will begin deposits under the plan for every employe completing twelve months of continuous service, it will increase its payments for those who depsoit to the fund on their own account.

In discussing the retirement plan, President Carlisle said: "No business can be successful without the hearty cooperation of those who make up the organization, and no plan, be it ever so well prepared, can be fully successful unless it has the support and cooperation of every man and woman in the organization.

"Under this plan, this company is investing a large sum of money for the benefit of its employes. The management has given the most thorough study and the most careful consideration to the plan and has placed it before the employes in full confidence that all those who are eligible to benefit will avail themselves of it."

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SUPERINTENDENT—Thoroughly equipped to take charge of rubber mill in Middle West. Must understand roll work, grinding rolls, and moulded goods, etc., in a mill that has specialized in roll work for thirty years. State experience, age and salary desired. Rapidly increasing business. Wonderful opportunity for right man. Address Box 538, THE RUBBER AGE.

WANTED by a responsible manufacturing concern in the East, a chemist experienced in mechanical rubber goods compounding. State experience. Reply to Box 540, THE RUBBER AGE.

WANTED by a responsible manufacturing concern in the East, a chemist experienced in rubber footwear compounding. State experience. Reply to Box 541, THE RUBBER AGE.

EASTERN Mechanical Goods Plant has opening for experienced chemist-compounder, capable of assuming charge of laboratory adapting new developments to factory practice. Experience with specification work desired if possible. Position represents excellent opportunity for young man having necessary experience and is available at once. Inquiries should contain all necessary information on which to judge applicants. Address Box 542, THE RUBBER AGE.

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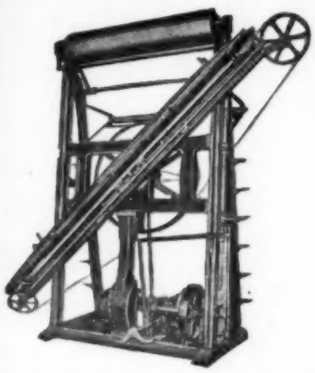

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LATE MARKET PRICES

Crude, Scrap & Reclaimed Rubber - Cottons and Fabrics

NEW YORK, NOVEMBER 2, 1929

COTTON

DURING the month of October the average spot closing price for middling upland cotton was 18.46 cents a pound, as compared with 18.83 cents during September and with 19.62 cents during October, 1928. The spot price at the close of the fortnight was the same as at the beginning, being 18.05 cents a pound on both October 21 and November 2, but quotations ranged higher during the period.

At no time was the cotton market visibly affected by the unprecedented action of the stock market, despite the liquidation of large speculative long lines. Cotton price quotations have consistently taken as their basis the actual conditions affecting the commodity and have not been disturbed by outside influences.

The market is still waiting for the report of the government crop reporting bureau to see whether its estimate of the year's yield will be increased materially. The last estimate made by the bureau was 14,915,000 bales, but it is generally believed that this will be added to in the new report.

High, low and closing prices quoted on November 2 were as follows:

	High	Low	Close	Close
	Nov. 2			Oct. 21
Nov.	——	——	17.61	17.97
Dec.	17.97	17.85	17.86	18.02
Jan.	18.08	17.97	17.98	——

Tire Fabrics

Tire fabrics have been quiet during the past fortnight with orders placed for only limited amounts and with prices nominally unchanged. Consumption of cotton fabric in the tire industry is not expected to pick up until after the first of the year. Prices recently quoted were as follows:

CORD			
Peeler, carded, 28/5/3	lb.	.47 @	.47½
Peeler, carded, 23/4/3	lb.	.48½@	.49
Peeler, carded, 13/3/3	lb.	.44½@	.45
Peeler, carded, 15/3/3	lb.	.43 @	.44
Egyptian, carded, 28/5/3	lb.	.51 @	.52
Egyptian, combed, 28/5/3	lb.	.57 @	.58
CHAFERS			
Carded, American, 8 oz.	lb	.40 @	.41
Carded, American, 10 oz.	lb	.40½@	.41½
Carded, American, 12 oz.	lb	.40½@	.42½
Carded, American, 14 oz.	lb	.39 @	.45
LENO BREAKER			
Carded, American, 8¼ oz.	lb.	.40 @	.46
Carded, American, 10¼ oz.	lb.	.40 @	.46
SQUARE WOVEN			
Carded, American, 17¼ oz. 28-11 ply	lb.	.47 @	.48
Carded, American, 17¼ oz. 10-ply	lb	.39 @	.40

Sheetings

There were no changes of moment in the sheetings market during the fortnight and no large business. Some bids were about, but sellers were usually firm. Latest price quotations, as reported by the Textile Brokers Association, follow:

40-inch, 2.50-yard	yd.	— @	.12⅝
40-inch, 2.85-yard	yd.	— @	.11¼
40-inch, 3.15-yard	yd.	— @	.11
40-inch, 3.60-yard	yd.	.09½@	.09⅝
40-inch, 3.75-yard	yd.	— @	.09⅜
40-inch, 4.25-yard	yd.	— @	.08⅜

Ducks

Scattered light trading made up the bulk of business in cotton duck during the past two weeks. Dealers were optimistic of a better demand this month, ascribing dullness to the break in stocks. Latest price quotations were as follows:

Belting and Hose	lb.	.35 @	.36½
Enameling	lb.	.32½@	.36
Single filling	lb.	.14½@	.16
Double filling	lb.	— @	.18

RECLAIMED RUBBER

Production and consumption of reclaimed rubber during October were at approximately the same level as during September, and stocks as of October 31 probably will show only slight change from September 30. Demand will most likely remain light until after the first of the year, and prices will undoubtedly remain stable until that time. The latest price quotations for the various grades were as follows:

High Tensile			
Super-Reclaim No. 1 Black	lb.	.12¼@	.12½
High Tensile Red	lb.	.11½@	.12
Shoe			
Unwashed	lb.	.07 @	.07¼
Washed	lb.	.09¾@	.10
Tube			
No. 1 (Floating)	lb.	.13 @	.13½
No. 2 (compounded)	lb.	.10¾@	.10½
Tires			
Black	lb.	.07¼@	.07½
Black, selected tires	lb.	.07½@	.07¾
Dark Gray	lb.	.09½@	.10
Light Gray	lb.	.11½@	.12
White	lb.	.12 @	.12½
Truck, Heavy Gravity	lb.	.07 @	.07¼
Truck, Light Gravity	lb.	.07¼@	.07½
Miscellaneous			
Mechanical Blends	lb	.06½@	.07
Red	lb.	.12 @	.12¼

Scrap Rubber

The market for rubber scrap has continued to be only moderate in its extent, but it is already apparent that demand is slowly but steadily increasing and will be at its height by the turn of the year. A slight easiness in prices has been noted in some grades, but the range of quotations on the list as a whole has been steady. The latest prices quoted were as follows:

(Prices to Consumer)			
Auto tire peelings	ton	35.00	@37.50
Standard White auto	ton	45.00	@47.50
Mixed auto	ton	22.50	@23.00
Bicycle tires	ton	18.50	@20.00
Clean solid truck tires	ton	24.00	@25.00
Boots and shoes	cwt.	1.45 @	1.50
Arctics, untrimmed	lb.	.00¾@	.01
Inner tubes, No. 1	lb.	.07¾@	.08
Inner tubes, No. 2, compounded	lb.	.04¼@	.04⅝
Inner Tubes, Red	lb.	.04⅝@	.04¾
Air Brake Hose	ton	25.00	@27.50
Rubber Hose	ton	17.50	@20.00

CRUDE RUBBER

PRICE quotations for crude rubber during the month of October were the lowest for the current year. The average spot price during the month was 19.67 cents a pound as compared with 20.37 cents in September and with 18.83 cents in October, 1928.

The spot price quotation at the close on November 1 was 17¾ cents a pound, a new low for the year, indicating that November will probably see a still lower average price than last month. This represents a more or less steady decline since February 26 when the year's high point of 26⅞ cents a pound was reached.

The expectation of heavy Malayan shipments during October and November and the belief that the statistical position at the end of October would prove unfavorable are the reasons given generally for the sharp decline in price. Some authorities believe, however, that the recessions may in large measure be traced to the recent stock market crash that caused a general liquidation of long lines in all commodities. Considerable buying by rubber factory interests has been noted at the current low price levels.

During the week ended November 2, there were 10,799 tons of crude rubber invoiced to the United States, more than during any of the three preceding weeks. Of this amount, 2,012 tons were shipped from the Dutch East Indies, the heaviest week's shipment from that quarter since the week ending June 1.

Prices quoted on the New York outside market on November 2 were as follows:

Plantations—			
Ribbed Smoked Sheets—			
Spot-Nov.		.17¾@	.18
Dec.		.17⅞@	.18⅛
Jan.-Mar.		.18⅜@	.18⅝
First Latex, crepe spot		.19 @	—
Amber Crepe, No. 2		.15¼@	.15½
Amber Crepe, No. 3		.15 @	.15¼
Amber Crepe, No. 4		.14¾@	.15
Brown Crepe, Clean thin		.15¼@	.15½
Brown Crepe, specky		.14¾@	.15⅛
Liquid Latex, per gal.		.90	
Paras—			
Up-river Fine		.19¼@	—
Up-river Medium		Nominal	
Up-river Coarse		.10½@	—
Acre Bolivian, fine		.19½@	—
Caucho Ball, Upper		.10½@	—
Islands, fine		Nominal	
Centrals—			
Central, scrap		.11 @	.11⅛
Esmeraldas		.11 @	.11½
Balata—			
Block, Colombia		Nominal	
Block, Ciudad		.51 @	.52

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers			
Spot-Nov.		8⅝@	8¾d
Dec.		8¾@	8⅞d
Jan.-Mar.		9 @	9⅛d

SINGAPORE MARKET

Spot		— @	8½d

H. MUEHLSTEIN & CO., Inc.

Crude - RUBBER - Scrap

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Especially useful in all Friction Stocks.

CONTINENTAL RUBBER CO., OF NEW YORK
1775 BROADWAY NEW YORK CITY

LATE RUBBER CHEMICAL PRICES

Accelerators — Colors — Softeners — Compounding Materials

NEW YORK, November 4.—Lessening demand for all types of rubber chemicals and compounding ingredients is now generally apparent. Carbon blacks continue in fairly heavy demand, but most accelerators and softeners show a slackening in shipments in sympathy with the reduced production schedules at rubber factories.

The year as a whole, however, has been the best that the industry has known, and present prospects point to 1930 being at least as large. Another feature of 1929 has been the fact that it has been a year of mergers and consolidations in the chemical industry, with smaller companies being absorbed on all sides by the larger factors.

ACCELERATORS

Organic				
A-7	lb.	.55	@	.59
A-11	lb.	.62	@	.66
A-16	lb.	.57	@	.61
A-19	lb.	.58	@	.62
A-20	lb.	.64	@	.68
Accelerator 102	lb.			
Accelerator 552	lb.			
Accelerator 808	lb.			
Accelerator 883	lb.			
Aldehyde ammonia, crystals	lb.	.65	@	.70
Aniline oil, drums, f.o.b. works	lb.	.15	@	.16¼
Cryiene	lb.	.55	@	.65
paste	lb.	.45	@	.55
Di-Ortho-Tolyguanidine	lb.	.42	@	.52
Diphenylguanidine	lb.	.30	@	.36
Ethylidene aniiene	lb.	.45	@	.47½
Formaldehyde aniline	lb.	.34	@	.44
Heptene	lb.	.40	@	—
Hexamethylene-tetramine	lb.	.58½	@	.61
Lithex	lb.	.18	@	.20
Methylenedianiline	lb.	.37½	@	.40
Monex	lb.	3.25	@	—
Oxynone	lb.	.68	@	.80
Para-Nitrosodimethylaniline, f.o.b. works	lb.	.92	@	.96
Piperidine-Piperidyldithio-Carbamate	lb.	4.45	@	4.60
R & H 40	lb.	.40	@	.42½
R & H 50	lb.	.40	@	.42½
R & H 397	lb.	.75	@	.77½
Safex	lb.	1.20	@	1.25
Tensilac, No. 39	lb.	.40	@	.42½
Tensilac, No. 41	lb.	.50	@	.52½
Thermic F	lb.	.50	@	.55
Tiocarbanilide, drums	lb.	.25½	@	.28½
Thionex	lb.			
Trimene	lb.	.75	@	—
base	lb.	1.20	@	—
Triphenylguanidine	lb.	.58	@	.62½
Ureka	lb.	.75	@	1.00
Vulcanex	lb.			
Vulcone	lb.			
Vulcanol	lb.			
Waxene	lb.	.30	@	.32
Z 88	lb.	.50	@	.60
Inorganic				
Lead, sublimed blue	lb.	.08¼	@	—
Lead, white	lb.	.10½	@	.12½
Litharge, domestic	lb.	.09	@	—
Magnesia, calcined, light	per 100 lb.	5.35	@	5.45
heavy	per 100 lb.	3.65	@	3.75

COLORS

Blacks (See Compounding Materials)				
Blues				
Prussian	lb.	.35	@	.40
Ultramarine	lb.	.06	@	.30
Browns				
Sienna, Italian	lb.	.05½	@	.12½
Umber, Turkey	lb.	.04½	@	.07
Greens				
Chrome, light	lb.	.27	@	.31
medium	lb.	.28	@	.31
dark	lb.	.31	@	.34
Chromium Oxide, bbl.	lb.	.31	@	.38
Reds				
Antimony crimson, 15/17	lb.	.44	@	.50
sulfur free	lb.	.52	@	.60
golden 15/17 F.S.	lb.	.20	@	.25
Indian English	lb.	.08	@	.12
Domestic (Maroon)	lb.	.08	@	.12
Oximony	lb.	.13¼	@	—
Red oxide, pure	lb.	.10	@	.12
Venetian red	lb.	.03	@	.06
Vermillion, quicksilver, English	lb.	1.95	@	—
Whites				
Lithopone, Akcolith	lb.	.05 3/5	@	.06
Lithopone, Albalith	lb.	.05¼	@	.05¾
Lithopone, Azolith	lb.	.05¼	@	.05¾
Lithopone, Vanolith	lb.	.05¾	@	—
Titanox, f.o.b. St. Louis	lb.	.08½	@	.09
Titanium Calcium Pigment, f.o.b. St. Louis	lb.	.08	@	.08¼
Zinc Oxide—American Process				
American Azo: ZZZ (lead free)	lb.	.06½	@	.07
ZZ (leaded)	lb.	.06⅝	@	.06⅞
Horsehead Brand: Special	lb.	.07	@	.07½
XX Green	lb.	.07	@	.07½
XX Red, lead free	lb.	.06½	@	.07
Kadox, black label	lb.	.10⅜	@	.10⅞
blue label	lb.	.09⅜	@	.09⅞
red label	lb.	.08	@	.08½
Zinc Oxide—French Process				
White seal	lb.	.11⅝	@	.11⅞
Green seal	lb.	.10⅜	@	.10⅞
Red seal	lb.	.09⅝	@	.09⅞
Yellows				
Chrome	lb.	.16½	@	.17
Ocher, French medium	lb.	.02	@	.03
domestic	lb.	.01⅝	@	.02

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85	@	24.50
Ammonia carbonate	lb.	.10½	@	.12
Asbestine	ton	14.75	@	18.00
Barium carbonate	lb.	.03½	@	.05
Barium Dust	lb.	.05	@	.06
Barytes southern off-color	ton	12.00	@	18.00
Western prime white	ton	23.00	@	—
imported	ton	27.00	@	36.00
Basofor	lb.	.04½	@	—
Blacks				
Arrow "Aerfloted"	lb.	.07	@	.12
Bone Black	lb.	.07	@	.08½
Carbon, compressed	lb.	.06½	@	.12
Carbon, uncompressed	lb.	.06½	@	.11
Disperso	lb.	.11	@	
Drop Black	lb.	.06	@	.10
Fumonex	lb.	.06	@	.09
Gastex	lb.	.04½	@	.08
Lamp Black	lb.	.12	@	.40
Micronex	lb.	.07	@	.12
Velvetex carbon	lb.	.04½	@	.06
Blanc fixe dry f.o.b. works	lb.	.03½	@	.03¾
Carrara filler	lb.	01¾	@	.02
Catalpo (fact.)	lb.	.02	@	—
Clay, China, domestic	ton	8.00	@	9.00
Aerfloted Suprex	ton	10.00	@	22.00
Congaree, c. l. f.o.b. mine	ton	9.00	@	—
Lexington	ton	10.00	@	22.00
Mineral Flour, c. l. fob mine	ton	20.00	@	23.00
Tensulite		15.00	@	—
Glues, extra white	lb.	.22	@	.26
medium white	lb.	.20	@	.24
Magnesia, carbonate	lb.	.07	@	.09
Mica (muscovite) 160 mesh White, water grnd., c.l.	lb.	.06	@	—
White, water grnd., ton lots, whse.	lb.	.07	@	—
White, water grnd., less ton lots, whse.	lb.	.08	@	—
Off color (biotite)	lb.	.05	@	.07
Rotten Stone (powdered)	lb.	.02½	@	.04½
Soapstone, powdered	ton	15.00	@	22.00
Starch, powdered	cwt.	3.30	@	3.70
Talc, domestic	ton	12.00	@	15.00
Whiting, commercial	cwt.	.85	@	1.00
English cliffstone	cwt.	1.75	@	2.00
Superfine	ton	10.00	@	12.00
Witco	ton	12.00	@	—
Wood pulp XXX	ton	45.00	@	—
Wood pulp X	ton	25.00	@	—
Zinc Carbonate	lb.	.09½	@	.10½
Zinc Stearate	lb.	.23½	@	.25
Zinc Sulfide	lb.	.19	@	.19½

MINERAL RUBBER

Genasco (factory)	ton	50.00	@	52.00
Montezuma, solid	ton	28.00	@	36.00
Montezuma, granulated	ton	32.00	@	42.00
Paradura	ton	62.50	@	65.00
Pioneer, MR, solid	ton	42.00	@	45.00
Pioneer-granulated	ton	52.00	@	55.00
R & H Hydro-Carbon	ton	27.05	@	29.00
Robertson, MR, solid	ton	34.00	@	80.00
M.R. (gran)	ton	32.00	@	80.00

SOFTENERS

Acids				
Nitric, 36 degrees	cwt.	5.00	@	5.25
Sulfuric, 60 degrees	ton	10.50	@	11.50
66 degrees	ton	15.00	@	16.00
Tartaric, crystals	lb.	.37	@	.38
Acids, Fatty				
Stearex	lb.	.15	@	.19
Stearic, double pressed	lb.	.17	@	.22
Alkalies				
Caustic soda, 76%	cwt.	3.76	@	3.91
Soda ash, 58% C.L.	cwt.	1.40	@	
Oils				
Corn, refined, bbls.	lb.	.11	@	.11½
Cottonseed, crude		.08½	@	.08¾
Cycline	gal.	.27	@	.34
Degras (c.l. 100 bbls.)	lb.	.03¾	@	—
Less c. l. (10-25 bbls.)	lb.	.04	@	—
Lots less than 10 bbls.	lb.	.04¼	@	.04½
Fluxrite	lb.	.05	@	.06
Linseed, Raw C.L. bbl.	lb.	.09½	@	.10
Palm Lagos	lb.	.07¼	@	.07½
Niger	lb.	.07⅝	@	.08
Vansulol	lb.	.10½	@	—
Para-Flux	gal.	.17	@	—
Petrolatum, white	lb.	.08	@	.08½
dark amber	lb.	.03¾	@	.03⅞
Pigmentaroil	gal.	.21	@	.26
Pine, steam distilled	gal.	.65	@	.70
destructively distilled	gal.	.55	@	.58
Witco Palm Oil	lb.	.11	@	—
Witco Softener (f.o.b. works)	lb	.02	@	—
Resins and Pitches				
Pitch, Burgundy	lb.	.06½	@	.07½
coal tar	gal.	.05½	@	.06
pine, 200 lb. gr. wt.	bbl.	9.00	@	10.00
Rosin, grade K, 280 lb. bbl.		8.55	@	—
Pigmentar	lb.	.038	@	.0446
Solvenol, drums	gal.	.48	@	.50
Tarol, drums	gal.	.30	@	.35
Tar Retort, 50 gal.	bbl.	12.50	@	13.00
Solvents				
Acetone, pure	lb.	.13	@	
Alcohol denatured, No. 1 bbls.	gal.	.37½	@	.44½
Benzol, 90%	gal.	.28	@	—
Carbon bisulphide	lb.	.05½	@	.06¼
Carbon tetrachloride	lb.	.06¼	@	.07
Motor gasoline, steel bbls.	gal.	.17	@	—
Naptha, solvent	gal.	.35	@	.40
Turpentine, spirits	gal.	.60	@	.64
wood	gal.	.50	@	.54
destructively distilled	gal.	.40	@	.43
Waxes				
Beeswax	lb.	.56	@	.58
Carnauba	lb.	.33	@	—
Ceresin, white	lb.	.10	@	.11
Montan, crude	lb.	.07	@	.07½
Ozokerite, black	lb.	.24	@	.25
green	lb.	.26	@	.30
Paraffin (c. l.—f.o.b. N. Y.)				
Yellow crude scale	lb.	.03¾	@	
White crude scale 124/126	lb	.04	@	
Refined, 125/127	lb.	.05¾	@	
Refined, 128/130	lb.	.05½	@	
Refined, 135/137	lb.	.07¾	@	
Refined, 138/140	lb.	.08¼	@	
Miscellaneous				
RSL Mold Solution	gal.	.75	@	.100

ANTI-OXIDANTS

Albasan	lb.	.70	@	.75
Antox	lb.			
Neozone	lb.			
Oxynone	lb.	.68	@	.80
Resistox	lb.	.54	@	.57
Stabilite	lb.	.64	@	—
VGB	lb.	.55	@	.66

SUBSTITUTES

Black	lb.	.08	@	.14
White	lb.	.10	@	.16
Brown	lb.	.08	@	.15

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03¼	@	.03½
Sulfur flour, Refined, 100% pure (bags)	cwt.	2.40	@	2.75
Commercial (bags)	cwt.	1.75	@	2.10

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

AUTHORITIES in the trade are already estimating that gross imports during October have been more than 8,000 tons in excess of domestic consumption. This means that stocks on hand in this country on October 31 probably were above the 90,000-ton mark and are well on their way toward passing 100,000 tons by the end of the year.

The amount of crude rubber invoiced to the United States in the last two weeks of October was only slightly less than during the first two weeks, but October as a whole saw a smaller total of shipments directed to this country than did September. London and Liverpool stocks had increased by October 26 to a total of 59,484 tons, the heaviest amount since the end of March, 1928.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available. The section accordingly affords the most up-to-date, complete and convenient statistical service in the industry.

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The fact that October shipments from British Malaya dropped to 47,937 tons as against September shipments of 53,484 tons and August shipments of 50,441 tons is held by the trade to be a favorable sign. Further decreases are looked for in coming months.

Although September gasoline consumption was seasonally lower than that for July or August, it was higher than for any other month previously recorded and reflects the increased number of automobiles running in the United States.

Latest figures covering imports and exports from the leading producing and consuming countries have been added to the appropriate tables in this section.

U. S. Imports and Exports of Crude Rubber

YEARS	Gross Imports: Long Tons	Gross Imports: Total Declared Value	Gross Imports: Average Declared Value per pound Cents	Re-exports: Long Tons	Re-exports: Total Declared Value	Re-exports: Average Declared Value per pound Cents	Net Imports: Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,978	25.03	32,159	18,128,361	25.17	407,572
1927:							
Jan.	43,340	36,753,719	37.86	1,525	1,444,734	42.28	41,815
Feb.	28,337	23,110,257	36.41	2,451	2,277,297	41.47	25,886
Mar.	35,515	28,693,016	36.07	2,763	3,249,665	52.50	32,752
Apr.	46,202	37,321,505	36.06	1,575	1,428,425	40.48	44,627
May	36,518	30,984,377	37.88	2,782	2,501,562	40.14	33,736
June	33,045	27,850,014	37.62	1,775	1,550,592	39.00	31,270
July	37,677	31,678,259	37.53	1,958	1,560,853	35.59	35,719
Aug.	32,810	26,396,931	35.92	1,809	1,382,768	34.12	31,001
Sept.	33,301	25,314,412	33 94	3,500	3,036,929	38.74	29,801
Oct.	30,184	22,163,282	32.78	2,513	2,042,713	36 29	[illegible]
Nov.	38,592	27,395,428	31.69	2,469	2,014,196	36.43	36,123
Dec.	30,737	22,213,574	32.26	2,655	2,245,754	37.77	28,082
1928:							
Jan.	39,107	30,278,444	34.56	1,988	1,734,990	38.95	37,119
Feb.	33,663	27,763,655	36.82	2,738	2,229,589	36.35	30,925
Mar.	40,611	32,103,042	35.29	3,718	2,587,435	31.07	36,893
Apr.	37,935	27,287,266	32.11	2,272	1,415,024	27.80	35,663
May	31,059	19,058,672	27.39	2,399	1,386,307	25.80	28,660
June	27,765	14,121,219	22.71	2,621	1,400,697	23.86	25,144
July	31,258	14,144,765	20.20	3,087	1,451,446	20.99	28,171
Aug.	31,204	12,860,150	18.39	2,377	1,084,646	20.37	28,827
Sept.	39,835	16,512,019	18.50	3,038	1,384,148	20.34	36,797
Oct.	44,058	18,200,332	18.44	2,405	1,085,407	20.15	41,653
Nov.	36,519	14,878,441	18.19	2,788	1,207,089	18.52	33,731
Dec.	43,511	17,580,966	18.04	2,738	1,165,743	19.00	40,773
1929:							
Jan.	57,564	22,872,943	17.74	3,663	1,773,401	21.61	53,901
Feb.	64,265	24,760,111	17.20	2,955	1,374,783	20.77	61,310
Mar.	50,604	20,380,905	17.98	4,218	2,094,037	22.16	46,386
Apr.	55,725	25,542,726	20.46	3,293	1,624,237	22.02	52,432
May	51,161	24,355,511	21.25	2,386	1,349,690	21.24	48,825
June	41,663	18,799,307	20.14	3,152	1,470,746	20.83	38,511
July	43,944	19,342,147	19.65	3,424	1,590,411	20.73	40,520
Aug.	37,222	16,530,090	19.83	2,644	1,232,217	20.80	34,578
Sept.	34,472	15,214,485	19.70	2,011	861,068	19.11	32,461
Oct.							
Nov.							
Dec.							

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1922	1923	1924	1925	1926	1927	1928	1929
Jan.	16,938	30,106	29,058	29,638	32,196	31,518	34,403	43,002
Feb.	14,767	30,149	25,736	19,761	31,136	30,137	33,702	41,594
Mar.	21,408	36,629	28,385	33,498	32,936	36,141	35,688	44,736
Apr.	19,294	29,085	27,129	34,139	32,696	35,871	32,772	47,521
May	23,246	36,155	25,845	35,322	29,364	34,592	37,333	49,233
June	31,713	24,272	22,753	35,822	28,598	33,801	37,676	43,227
July	24,522	17,685	23,396	36,053	27,577	29,219	37,407	41,526
Aug.	29,631	20,359	28,982	35,909	34,533	33,460	42,927	38,274
Sept.	24,410	17,594	31,497	31,691	32,904	27,214	39,882	34,707
Oct.	26,881	21,321	31,520	29,047	29,836	26,790	40,857	
Nov.	24,950	20,437	27,289	28,853	28,080	26,792	37,461	
Dec.	25,070	31,902	27,199	28,748	26,293	25,492	31,232	
Totals	282,560	305,694	328,769	388,481	366,149	371,027	441,340	

Figures on Quarterly Basis

Quarter	1922	1923	1924	1925	1926	1927	1928	1929
Jan./Mar.		96,776	87,609	95,263	94,301	99,216	103,558	128,565
Apr./June	127,360	89,493	75,674	104,099	87,109	103,242	103,500	139,292
July/Sept.		55,621	83,813	99,493	93,793	89,210	117,573	
Oct./Dec.	155,067	63,617	92,656	85,789	83,212	80,860	117,597	
Totals	282,427	305,507	339,752	384,644	358,415	372,528	442,227	267,857

Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

Rubber Invoiced to the U. S.

(Reported by American Consuls—Quantities in Long Tons)

During the Week Ended	From Br. Malaya	From Ceylon	From Dutch East Indies	From London & Liverpool	Total
Aug. 3	4,784	780	1,251	10	6,825
Aug. 10	5,850	873	1,222	—	7,945
Aug. 17	5,444	593	1,444	33	7,514
Aug. 24	5,560	602	1,401	23	7,586
Aug. 31	5,408	657	1,338	3	7,406
Sept. 7	8,313	1,691	1,256	38	11,298
Sept. 14	7,318	1,080	1,674	37	10,109
Sept. 21	7,514	533	1,549	15	9,611
Sept. 28	6,861	1,975	1,456	140	10,432
Oct. 5	7,918	1,748	1,632	52	11,345
Oct. 12	6,639	1,216	1,462	65	9,382
Oct. 19	6,991	590	1,819	383	9,783
Oct. 26	6,194	1,406	1,558	242	9,400

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave
1927																																
April	41¼	41¼	—	41	41¼	41¼	41¼	41¼	41¾	—	41¾	41	40¾	40¾	40¾	—	40¾	40¾	40¾	40½	41	40¾	40¾	—	40¾	40½	40¾	40½	40½	40½	—	40½
May	—	40½	40¾	40½	41	41	40¾	40¾	—	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40½	40½	40¾	40½	40½	40½	—	40½
June	40¾	40¼	40¾	40¾	40¾	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	—	39½
July	85½	85½	85½	85½	85½	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	84¾	—	84¾
August	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	85½	—	85½
Sept.	84	83¾	83¾	83¾	83¾	83¾	83¾	83¾	83¾	83¾	83¾	83¾	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	—	84
Oct.	85	85½	85½	85½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	87	87	87	87	87	87	87	87½	87½	87½	87½	87½	87½	87½	87½	87½	—	87½
Nov.	—	85	85½	85½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	86½	—	86½
Dec.	—	40½	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	39¾	39¾	39¾	39¾	39¾	40¾	40½	40½	40½	40½	40½	40½	41½	41½	41½	41½	—	40¾
1928																																
January	—	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	—	41¾
February	87½	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	87¾	—	87¾
March	29	26½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	28½	—	28½
April	—	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	27¼	—	27¼
May	—	17½	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	—	17¾
June	—	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	—	19¾
July	—	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	—	18½
August	19½	19½	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	19¾	—	19¾
September	—	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	—	18½
October	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	—	18½
November	18¾	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	18½	—	18½
December	17¾	—	17¾	17¾	17¾	17¾	17¾	17¾	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	—	18
1929																																
January	—	18¼	18¼	18¼	18¼	18¼	18¼	18¼	18¼	18¼	18¼	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	—	20
February	22	—	—	22¼	22¼	22¼	22¼	22¼	22½	22½	22½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	—	24
March	26	—	—	26	26	26	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	25½	—	24½
April	23	23¼	—	22¾	22½	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
May	19¾	19¾	19¾	19¾	19¾	20¼	21	21½	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	—	21½
June	21⅛	—	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	21¾	—	21¾
July	20½	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	—	21
Aug.	21¾	21	21	21	21	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	20¼	—	20¼
Sept.	—	19½	19½	19½	19½	19½	19½	19½	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	—	20
Oct.	19¾	19½	19½	19¾	19¾	19¾	19¾	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	20⅛	—	20⅛
Nov.	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	17¾	—	17¾

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23	1921	16.86

Average Monthly Price per Pound Since 1922

Months	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents	1929 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75	40.25	20.14
Feb.	16.12	35.14	25.29	36.01	62.25	38.25	32.75	23.97
Mar.	14.53	34.21	22.83	41.00	59.00	41.04	26.82	24.55
Apr.	15.99	32.48	22.51	43.64	51.25	40.86	18.97	21.18
May	15.25	27.39	18.89	58.47	47.75	40.76	18.99	21.46
June	15.11	26.88	18.81	77.26	42.50	37.25	19.59	20.64
July	14.67	26.10	22.16	103.16	41.03	34.87	19.40	21.30
Aug.	13.93	28.84	26.17	82.99	38.50	35.12	19.46	20.59
Sept.	14.44	28.95	27.56	88.88	41.00	33.67	18.47	20.37
Oct.	19.78	26.93	31.13	98.01	42.50	34.32	18.33	19.67
Nov.	23.88	27.14	34.33	104.80	38.50	37.58	18.26	—
Dec.	27.42	26.60	37.88	98.51	38.25	40.63	17.97	—
Average for Year	17.50	29.45	26.26	72.46	48.50	37.72	22.48	—

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Aug.	Sept.	Oct.	Nov.	Day	Aug.	Sept.	Oct.	Nov.
1	11	—	9¾	8⅞	17	10¼	10¼	9¾	—
2	11	10¼	9½	8⅝	18	—	10¼	9¾	—
3	—	10¼	9⅝	—	19	10½	10¼	9¾	—
4	—	10¼	9½	—	20	10¼	10¼	—	—
5	—	10⅜	9¾	—	21	10¼	10¼	9¾	—
6	10⅞	10¼	—	—	22	10¼	—	9⅝	—
7	10⅞	10⅜	9¾	—	23	10¼	10¼	9⅝	—
8	10¾	—	10	—	24	10⅜	10¼	9⅜	—
9	10¾	10¼	10	—	25	—	10⅛	9¼	—
10	10¾	10¼	9⅞	—	26	10⅜	10	9⅛	—
11	—	10¼	9⅞	—	27	10⅜	10	—	—
12	10⅝	10¼	10	—	28	10½	9¾	9⅛	—
13	10⅝	10¼	—	—	29	10⅜	—	9	—
14	10⅝	10¼	10	—	30	10¼	9¾	9⅛	—
15	10½	—	10	—	31	10¼	—	9⅛	—
16	10⅜	10¼	9⅞	—					

Average Monthly Price Per Pound

Month	1927 Pence	1928 Pence	1929 Pence	Month	1927 Pence	1928 Pence	1929 Pence
Jan.	19.410	19.310	9.942	Aug.	17.202	9.300	10.505
Feb.	19.021	15.713	11.875	Sept.	16.293	8.530	10.160
Mar.	20.125	12.736	12.135	Oct.	16.366	8.807	9.620
Apr.	19.897	8.864	10.490	Nov.	18.159	8.596	—
May	19.769	8.845	10.717	Dec.	19.690	8.570	—
June	17.880	9.293	10.580	Average for Year	18.375	10.656	—
July	16.770	9.312	11.065				

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Oct.	Nov.	Day of Month	Oct.	Nov.	Day of Month	Oct.	Nov.
1	18.80	18.10	11	18.55	—	21	18.05	—
2	18.95	18.05	12	18.55	—	22	18.50	—
3	18.90	—	13	—	—	23	18.15	—
4	18.90	—	14	18.35	—	24	18.40	—
5	19.00	—	15	18.35	—	25	18.40	—
6	—	—	16	18.25	—	26	18.40	—
7	19.10	—	17	18.00	—	27	—	—
8	18.65	—	18	18.00	—	28	18.25	—
9	18.65	—	19	18.00	—	29	18.10	—
10	18.65	—	20	—	—	30	18.35	—
						31	18.10	—

Average Monthly Price Per Pound

Month	1927 Cents	1928 Cents	1929 Cents	Month	1927 Cents	1928 Cents	1929 Cents
Jan.	13.42	19.12	20.22	Aug.	20.04	19.28	18.62
Feb.	14.10	18.40	20.21	Sept.	21.95	18.67	18.83
Mar.	14.32	19.38	20.19	Oct.	20.22	19.62	18.46
Apr.	14.75	20.63	20.29	Nov.	20.22	19.84	—
May	16.07	21.58	19.41	Dec.	19.58	20.22	—
June	16.85	21.50	18.74	Average for Year	17.49	19.97	—
July	18.00	21.36	18.62				

Stock of Crude Rubber in the U. S.

(All Quantities in Long Tons)

At End of	ON HAND 1927	ON HAND 1928	ON HAND 1929	AFLOAT 1927	AFLOAT 1928	AFLOAT 1929	ON HAND AND AFLOAT 1927	ON HAND AND AFLOAT 1928	ON HAND AND AFLOAT 1929
Jan.	76,172	110,244	76,342	45,312	41,256	78,596	121,484	151,500	154,938
Feb.	91,186	108,955	90,058	42,166	43,316	63,825	133,352	152,271	153,883
March	85,740	114,061	100,536	49,600	39,324	56,476	135,340	153,385	157,012
April	92,757	113,083	107,659	38,963	33,986	55,409	131,720	147,069	163,068
May	94,568	105,356	97,192	44,181	34,374	55,404	138,744	139,730	152,596
June	89,250	90,198	92,061	47,233	40,001	46,035	136,483	130,119	138,096
July	98,469	83,242	92,535	40,687	42,304	38,858	139,056	125,546	134,393
Aug.	96,148	68,994	90,769	40,937	51,875	41,618	137,085	120,869	132,387
Sept.	97,829	68,851	84,362	37,966	48,566	49,480	135,793	117,417	133,842
Oct.	97,452	66,421		42,804	41,571		140,256	107,992	
Nov.	101,084	61,956		37,076	68,119		138,110	130,075	
Dec.	100,130	66,166		47,938	68,764		148,068	134,930	

(Rubber Manufacturers' Association figures raised to 100%.)

Stock of Crude Rubber in London

(No. of tons in Wharves and Warehouses, including Latex)

At end of:	1921	1922	1923	1924	1925	1926	1927	1928	1929
Jan.	56,573	67,252	73,498	57,460	27,172	9,994	54,994	66,524	25,191
Feb.	59,439	67,623	70,483	56,732	23,425	10,004	58,826	62,964	25,554
Mar.	63,913	66,670	63,438	55,647	18,104	13,127	63,055	58,272	28,214
Apr.	68,759	68,637	58,770	54,559	12,949	18,773	66,897	53,425	31,368
May	70,403	70,146	54,439	51,615	5,895	20,384	67,169	44,628	31,290
June	69,408	71,597	51,050	51,115	5,318	23,984	63,902	38,756	31,025
July	71,065	71,515	49,937	52,073	4,258	27,727	63,717	35,429	30,080
Aug.	73,211	72,112	58,427	49,700	4,619	30,165	64,491	32,084	35,605
Sept.	72,175	70,977	54,523	44,011	5,453	35,077	68,236	31,440	
Oct.	69,229	68,536	58,891	37,523	5,086	42,138	69,569	24,207	
Nov.	70,786	68,548	60,074	33,593	3,869	44,057	67,050	17,775	
Dec.	69,792	72,299	60,246	29,488	5,697	48,918	63,793	19,815	

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1928					
October	29,525	27,370	26,477	24,240	
November	22,919	21,494	20,194	18,724	
December	16,855	16,517	17,669	18,821	19,727
1929					
January	21,953	23,016	23,547	24,423	
February	25,389	25,413	24,757	25,005	
March	25,441	25,920	26,442	27,656	28,077
April	28,934	30,446	30,503	31,213	
May	31,580	31,127	30,955	30,893	
June	31,539	31,635	31,127	30,617	30,982
July	29,996	30,661	30,790	30,167	
August	30,937	31,444	33,573	34,651	35,605
September	36,620	37,901	40,151	42,077	
October	43,478	44,339	45,711	46,819	

Rubber in Singapore and Penang

(Stocks held by Dealers—Quantities in Long Tons)

End of	1927	1928	1929	End of	1927	1928	1929
Jan.	25,440	25,868	29,617	July	22,558	18,663	33,859
Feb.	26,766	22,867	32,373	Aug.	25,764	18,971	30,834
Mar.	27,844	20,538	29,437	Sept.	25,178	14,898	27,108
Apr.	24,543	16,946	26,474	Oct.	25,790	12,149	—
May	25,133	17,437	30,764	Nov.	28,369	29,188	—
June	21,898	18,207	30,403	Dec.	25,798	32,895	—

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1923	23,140,620	0.6	1926	24,199,524	78.8
1924	21,863,311	19.7	1927	19,700,003	79.1
1925	26,001,664	66.8	1928	24,247,282	81.6
1928			1929		
January	1,835,207	79.4	July	1,896,666	78.2
February	2,265,024	80.8	August	1,570,099	79.4
March	2,613,389	80.4	September	2,110,003	80.7
April	2,729,899	81.3	October		
May	2,574,224	76.5	November		
June	2,184,219	75.3	December		

U. S. Consumption of Gasoline

(In Barrels of 42 Gallons)

MONTHS	1925	1926	1927	1928	1929
January	14,386,000	17,582,000	17,888,000	20,938,000	22,602,000
February	13,210,000	15,814,000	18,240,000	21,136,000	22,776,000
March	14,890,000	19,302,000	22,464,000	24,041,000	28,495,000
April	19,013,000	20,848,000	23,371,000	25,712,000	32,019,000
May	20,459,000	24,213,000	26,579,000	27,355,000	34,117,000
June	20,724,000	23,803,000	27,799,000	29,022,000	33,163,000
July	22,879,000	24,752,000	29,784,000	30,960,000	36,860,000
August	22,323,000	26,912,000	29,779,000	33,148,000	37,759,000
September	20,177,000	22,929,000	28,409,000	29,691,000	34,193,000
October	19,826,000	23,973,000	25,497,000	30,610,000	
November	18,024,000	20,618,000	24,400,000	26,222,000	
December	17,954,000	21,419,000	23,718,000	26,644,000	
TOTAL	223,865,000	262,165,000	297,928,000	327,932,000	

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1922	1923	1924	1925	1926	1927	1928
Production	40,932	45,259	51,633	60,845	61,237	64,439	77,944
Shipments	39,987	45,204	50,120	59,262	59,002	64,059	74,296
Inventory[2]	6,132	5,772	7,427	8,142	10,456	10,264	13,624

Figures for Recent Months

	PRODUCTION 1927	PRODUCTION 1928	PRODUCTION 1929	SHIPMENTS 1927	SHIPMENTS 1928	SHIPMENTS 1929	INVENTORY 1927	INVENTORY 1928	INVENTORY 1929
Jan.	4,965	5,358	6,722	4,932	5,394	6,626	10,432	9,949	13,712
Feb.	5,095	6,363	6,912	4,458	5,031	5,282	11,075	11,721	15,495
Mar.	6,276	6,819	7,519	5,701	5,731	6,708	11,563	12,389	16,351
Apr.	6,299	6,178	7,884	5,701	5,812	7,294	12,122	12,71.	16,929
May	6,151	6,759	8,145	5,657	6,457	7,184	12,462	13,024	17,849
June	6,202	6,692	7,304	6,253	7,117	7,254	12,462	12,162	17,957
July	5,087	6,498	6,475	5,973	7,895	7,855	11,326	11,157	15,830
Aug.	5,752	7,469	5,806	6,393	8,403	7,845	10,721	10,034	14,226
Sept.	4,822	6,802		5,717	7,145		9,722	9,765	
Oct.	4,773	7,326		4,799	5,717		9,665	11,520	
Nov.	4,502	6,075		4,306	4,998		10,136	12,579	
Dec.	4,497	5,605		4,165	4,591		10,264	13,624	

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1922	1923	1924	1925	1926	1927	1928
Production	50,850	60,116	70,706	82,614	76,618	70,823	80,180
Shipments	49,673	59,072	68,016	81,004	71,591	72,896	77,127
Inventory[2]	7,643	8,425	11,052	11,313	16,200	13,692	16,117

Figures for Recent Months

	PRODUCTION 1927	PRODUCTION 1928	PRODUCTION 1929	SHIPMENTS 1927	SHIPMENTS 1928	SHIPMENTS 1929	INVENTORY 1927	INVENTORY 1928	INVENTORY 1929
Jan.	5,337	5,441	6,517	6,016	6,072	7,242	15,585	12,982	15,386
Feb.	5,658	6,895	6,769	5,120	5,431	5,278	16,075	14,650	16,999
Mar.	7,184	6,231	7,466	6,157	5,731	6,737	17,096	15,573	17,750
Apr.	7,373	6,661	7,634	6,359	5,702	7,164	17,801	16,638	18,134
May	6,737	7,168	7,660	6,140	6,300	7,038	18,389	17,702	18,928
June	6,306	6,953	6,978	6,832	7,136	6,950	17,858	17,159	18,741
July	5,284	6,674	6,178	7,070	8,729	8,113	16,004	14,974	16,332
Aug.	6,480	8,343	5,846	7,983	9,350	8,183	14,664	13,931	14,157
Sept.	5,651	7,103		6,758	7,154		13,511	13,548	
Oct.	5,065	6,929		5,024	5,662		13,539	15,285	
Nov.	4,775	5,592		4,723	5,002		13,585	15,743	
Dec.	4,969	5,184		4,712	4,853		13,692	16,117	

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% representative or complete when issued and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States Total	United States Passenger Cars	United States Trucks	Canada Total	Canada Passenger Cars	Canada Trucks	Grand Total
1922	2,547,208	2,302,923	244,285	102,053	94,904	7,149	2,649,261
1923	4,020,255	3,631,728	388,527	146,438	129,228	17,210	4,166,693
1924	3,600,918	3,203,049	397,869	135,246	117,765	17,481	3,736,164
1925	4,265,704	3,760,459	505,245	161,389	139,311	22,078	4,427,093
1926	4,298,799	3,808,753	490,046	205,092	164,483	40,609	4,503,891
1927	3,393,887	2,988,868	453,019	179,426	146,870	32,556	3,573,313
1928							
Jan.	225,039	199,032	26,007	8,463	6,705	1,758	282,502
Feb.	323,368	290,830	32,358	12,504	10,315	2,189	335,872
March	412,825	371,408	41,417	9,724	7,478	2,246	422,549
April	409,948	364,877	45,071	24,240	20,546	3,694	434,188
May	425,990	375,798	50,192	33,942	29,764	4,178	459,932
June	396,967	356,439	40,528	28,399	25,341	3,058	425,366
July	390,445	337,933	52,512	25,226	20,122	5,104	415,671
Aug.	458,429	400,689	57,740	31,245	24,274	6,971	489,674
Sept.	413,722	358,872	54,850	21,193	16,572	4,621	434,915
Oct.	397,096	339,976	57,120	18,536	13,016	5,520	415,632
Nov.	256,936	217,256	39,680	11,769	8,154	3,615	268,705
Dec.	283,135	205,144	27,991	9,425	6,734	2,691	242,560
TOTAL	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929							
Jan.	402,154	350,617	51,537	21,501	17,164	4,337	423,655
Feb.	466,084	407,589	58,495	31,287	28,486	2,801	497,371
March	584,733	515,266	69,559	40,621	32,833	7,788	625,354
April	620,656	538,679	81,977	41,901	34,592	7,509	662,557
May	603,969	516,055	86,596	31,559	25,129	6,430	635,528
June	545,252	453,956	91,296	21,492	16,511	4,981	566,744
July	500,331	427,213	73,118	17,461	13,600	3,861	517,792
Aug.	499,629	444,711	54,918	14,214	11,037	3,177	513,843
Sept.	415,332	365,651	49,681	13,817	10,710	3,107	429,149
Oct.							
Nov.							
Dec.							

Exports of Crude Rubber from Principal Producing Countries

(Long Tons)

	BRITISH MALAYA[1]							DUTCH EAST INDIES[4]						
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[2]	India & Burma[3]	Sarawak[4]	British North Borneo[5]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[4]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,955
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	18,797	517,523
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1927:															
Oct.	29,846	15,801	14,045	5,245	802	721	591	542	3,810	7,755	13,633	775	2,752	939	51,520
Nov.	28,277	19,860	8,417	4,464	1,277	1,241	591	600	4,127	6,587	14,395	683	2,369	1,627	46,378
Dec.	32,185	17,865	14,320	4,130	1,395	946	592	664	5,763	7,878	13,438	1,191	3,340	1,444	55,101
1928:															
Jan.	27,789	16,618	11,171	3,880	1,605	842	581	525	4,851	7,988	11,774	1,100	2,278	1,026	47,565
Feb.	28,848	12,911	15,937	4,947	1,081	667	581	536	4,052	6,757	8,630	787	1,612	1,276	46,860
Mar.	27,879	10,508	17,371	3,683	775	645	581	269	3,999	5,825	9,690	700	2,750	1,211	47,499
Apr.	20,189	9,385	10,804	3,233	789	630	494	258	3,993	5,040	5,499	736	1,014	1,323	33,810
May	26,483	10,350	16,133	3,091	654	842	494	241	4,943	5,355	10,347	717	2,602	1,135	45,994
June	22,994	16,168	6,826	3,107	963	926	494	451	5,419	5,863	13,655	725	1,399	960	40,788
July	30,481	13,383	17,098	5,129	1,043	905	593	366	5,602	7,566	11,594	698	1,264	873	52,731
Aug.	35,674	15,114	20,560	5,720	398	1,227	593	544	5,668	7,438	11,893	712	1,732	450	56,936
Sept.	29,769	11,239	18,530	4,675	457	938	594	447	4,956	6,536	9,863	969	1,614	494	50,073
Oct.	24,476	12,603	11,873	3,999	864	949	564	457	5,295	7,474	10,124	513	1,399	732	44,243
Nov.	68,135	10,436	57,699	8,005	1,048	772	564	425	4,950	7,902	7,805	943	1,790	623	92,526
Dec.	66,763	11,122	55,641	7,848	1,113	744	565	294	5,120	8,792	10,896	948	2,220	588	94,769
1929:															
Jan.	52,546	13,415	39,131	8,301	1,664	873	600	461	5,640	8,067	11,076	850	2,134	642	79,439
Feb.	47,926	12,103	35,823	7,064	1,117	955	600	495	6,572	7,511	10,384	807	2,104	520	73,952
Mar.	49,448	14,553	34,895	6,583	1,413	758	601	499	5,515	6,620	10,629	658	2,332	786	71,289
Apr.	49,816	11,414	38,402	5,097	727	747	548	306	5,997	6,645	11,321	673	1,950	569	72,982
May	43,960	15,593	28,367	5,723	800	966	548	453	6,264	6,961	13,437	650	1,922	733	66,824
June	40,398	14,344	26,054	5,563	1,122	1,061	547	422	5,582	6,693	11,270	608	1,398	548	60,868
July	46,454	15,071	31,383	5,457	974	1,247	500*	462	6,422	7,192	13,995	555	1,457	543	70,187*
Aug.	50,441	15,469	34,972	5,564	685	993	500*	431	4,644	7,298	10,782	545	1,563	499	68,476*
Sept.	53,484	12,392	41,092	7,961					4,708	7,517	10,149	755			
Oct.	47,937	12,516	35,421												

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927 and 1,437 in 1928. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included— such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons in 1926, about ½ ton in 1927, and 1 ton in 1928. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, and 1,459 tons in 1928. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands. This figure includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown immediately it becomes available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States*	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ee)	Australia (ed)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	236,977	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	342,378
1920	248,762	56,844	18,885	11,890	11,746	5,297	6,128	62	1,815	3,840	5,510	2,292	2,008	567	370,641
1921	179,678	42,087	15,135	21,920	8,124	21,718	3,906	165	1,014	1,705	1,022	1,279	2,245	589	300,562
1922	296,267	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,648	172	3,807	1,778	589	567	395,888
1923	300,372	12,700	27,392	18,519	13,277	15,372	9,489	2,986	1,649	2,184	792	2,528	630	1,128	408,018
1924	317,747	11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	-807	3,178	944	1,370	414,847
1925	381,815	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	516,499
1926	395,667	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	613,649
1927	398,483	60,249	34,271	38,892	26,408	20,521	11,381	12,018	9,490	6,482	636	4,224	2,055	2,672	627,789
1928	404,496	4,846	36,498	37,855	30,447	25,621	12,433	15,134	8,430	7,958	2,243	4,418	3,178	3,138	596,695
1927:															
September	29,801	7,800	1,956	2,891	1,850	2,025	684	518	772	552	33	451	155	272	49,694
October	27,671	5,888	3,479	4,202	1,790	1,966	1,021	1,075	908	465	156	401	153	363	49,538
November	36,123	1,687	3,661	4,209	1,916	1,575	1,167	1,312	836	749	298	474	246	317	54,570
December	28,082	309	4,696	3,108	2,302	2,710	1,462	1,453	1,242	784	-202	514	268	300	47,028
1928:															
Jan.	37,120	1,921	1,764	2,485	2,290	1,361	760	755	802	589	52	261	335	376	50,871
Feb.	30,926	3,143	2,526	2,984	2,553	1,248	437	783	616	599	98	307	296	297	46,813
Mar.	36,893	3,179	1,902	3,521	2,989	1,694	763	231	918	816	95	351	497	398	54,247
April	35,663	—2,280	2,204	2,719	1,938	2,334	1,114	1,820	832	575	280	339	304	159	48,001
May	28,660	—5,322	3,297	2,944	2,180	2,288	1,090	3,893	655	746	209	485	220	213	41,558
June	25,143	—3,031	3,597	2,968	2,186	2,102	984	4,111	348	743	133	346	251	182	40,063
July	28,170	—1,374	3,518	3,387	2,692	2,026	1,598	724	591	395	395	294	175	384	43,475
Aug.	28,827	48	3,527	2,744	2,447	1,868	875	632	707	519	316	359	58	94	43,021
Sept.	36,800	4,199	3,524	3,553	2,812	1,837	1,278	20	603	597	345	377	277	235	56,457
Oct.	41,667	—934	3,728	4,386	2,943	3,711	1,049	98	766	696	141	527	250	318	59,346
Nov.	33,846	—3,141	3,278	3,694	2,799	2,150	1,340	689	837	544	31	337	252	282	46,938
Dec.	40,781	8,438	3,633	2,470	2,618	3,002	1,145	1,378	755	639	148	435	263	200	65,905
1929:															
Jan.	53,922	11,951	5,645	4,711	3,759	3,776	1,481	956	1,061	749	218	638	179	525	89,571
Feb.	61,331	5,179	5,001	4,613	2,908	2,727	1,259	684	1,131	627	113	226	115	356	86,275
Mar.	46,391	9,068	4,409	4,586	4,961	2,630	1,515	716	725	931	316	354	80	409	77,091
Apr.	52,447	8,295	4,854	5,351	3,177	2,308	1,407	703	1,518	750	144	956	40	445	82,395
May	48,350	5,112	3,152	3,682	2,937	2,314	1,417	996	1,437	854	201	468	37	277	71,233
June	38,676	4,787	6,814	3,948	3,075	1,593	1,624	695	2,215	672	687	507	24	420	65,737
July	40,914	4,993	4,839	3,559	3,205	2,388	2,023		2,918	1,039	253	519		465	
Aug.	35,207	14,594		4,082	2,879		908		724		254			319	
Sept.	32,171	17,010		4,494											

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. *United States imports of guayule are not included in this compilation; such imports amounted to 4,305 tons in 1926; to 5,010 tons in 1927; to 3,076 in 1928; and to 743 tons in the first 8 months of 1929.

Domestic Production of Miscellaneous Rubber Goods

	Rubber Proofed Fabrics Yards	Rubber Heels Pairs	Rubber Soles Pairs	Mechanical Goods Shipments Dollars
1924	25,020,000	186,279,000	(1)	$48,615,000
1925	23,988,000	206,970,000	16,211,620 (2)	64,877,000
1926	29,328,000	183,312,000	12,253,000	76,789,000
1927	37,872,000	201,014,000	27,160,000	68,625,000
1928	41,179,000	235,170,000	37,645,000	69,114,000
1928:				
January	2,177,000	17,682,000	3,431,000	$5,630,000
February	2,575,000	19,181,000	3,628,000	5,858,000
March	2,853,000	22,583,000	3,747,000	6,675,000
April	2,416,000	18,575,000	2,928,000	5,406,000
May	2,744,000	21,597,000	3,519,000	6,274,000
June	2,953,000	18,763,000	3,321,000	6,126,000
July	3,447,000	17,620,000	3,168,000	5,157,000
August	4,613,000	21,289,000	3,461,000	6,306,000
September	4,966,000	21,451,000	2,725,000	5,393,000
October	5,914,000	21,932,000	2,297,000	5,837,000
November	4,173,000	18,686,000	2,649,000	5,201,000
December	2,348,000	15,811,000	2,771,000	5,271,000
1929:				
January	2,828,000	19,975,000	3,876,000	6,033,000
February	3,095,000	18,979,000	2,869,000	6,135,000
March	3,952,000	17,226,000	2,746,000	7,013,000
April	4,000,000	17,256,000	2,601,000	7,035,000
May	4,860,000	19,541,000	2,916,000	7,189,000
June	4,409,000	20,007,000	2,502,000	6,792,000
July	4,260,000			6,306,000

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

United States Imports of Guayule Rubber and Related Gums

(All quantities in Long Tons)

	Guayule		Balata		Jelutong		Gutta Percha	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
1919	1,430	760,690	727	937,038	8,332	2,213,964	2,900	1,068,698
1920	758	845,985	1,064	1,260,043	5,672	2,068,501	3,183	1,520,309
1921	58	26,945	814	1,077,859	1,745	351,893	985	333,564
1922	127	57,040	812	978,765	2,335	403,812	818	281,012
1923	1,155	542,227	700	898,524	4,565	853,308	912	375,167
1924	1,356	536,392	464	568,456	6,165	1,237,100	1,408	463,610
1925	3,781	1,803,448	517	574,750	6,749	1,642,531	1,603	629,284
1926	4,305	2,562,096	354	327,213	7,263	3,127,757	1,445	661,156
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,494	728,172
1928:	3,075	1,755,685	731	430,855	7,552	2,540,059	1,597	777,128
July	191	100,342	123	46,747	373	113,295	81	27,344
Aug.	—	—	399	165,460	451	126,962	147	60,738
Sept.	—	—	60	38,198	2,028	713,736	125	56,768
Oct.	—	—	121	59,358	429	129,065	239	94,570
Nov.	—	—	59	41,119	472	140,116	88	35,409
Dec.	—	—	83	58,311	522	156,154	145	59,911
1929:								
Jan.	—	—	46	30,374	484	152,260	138	62,950
Feb.	—	—	82	70,209	823	255,594	40	19,806
Mar.	—	—	90	75,444	428	122,026	1	1,140
Apr.	83	38,241	163	93,240	1,086	315,621	1	1,086
May	125	57,260	70	67,891	752	212,400	76	24,053
June	145	62,808	31	26,038	802	248,143	77	25,612
July	200	86,175	49	46,440	572	180,065	14	5,807
Aug	190	80,443	58	47,769	575	171,733	—	—
Sept.	107	51,156	38	30,327	913	279,225	—	—

Reclaimed Rubber in the United States

(All Quantities in Long Tons—100% Basis)

Year	Production	Consumption Tons	Consumption % to Crude	Stocks*	Year	Production	Consumption Tons	Consumption % to Crude	Stocks*
1919	81,366	73,535	36.3	.....	1924	80,079	76,072	22.4	.....
1920	86,395	75,297	38.4	.....	1925	132,930	137,105	35.6	13,203
1921	36,725	41,351	24.1	.....	1926	180,582	164,500	45.9	23,218
1922	57,834	54,458	19.3	.....	1927	189,144	178,471	47.6	24,980
1923	74,766	69,534	22.7	.....	1928	208,516	223,000	50.4	24,785
1927:									
Jan.	16,526	12,374	39.3	25,905	July	15,488	13,842	47.4	26,599
Feb.	15,860	14,424	47.8	27,291	Aug.	15,199	15,836	47.3	25,157
Mar.	16,788	13,528	37.4	27,124	Sept.	14,392	14,790	54.3	23,429
Apr.	14,483	16,677	46.5	25,712	Oct.	16,127	17,292	64.5	22,176
May	16,159	15,754	46.1	26,419	Nov.	15,477	14,876	55.5	21,728
June	16,652	15,547	46.0	25,811	Dec.	16,083	13,431	52.7	24,980
1928:									
Jan.	14,862	20,140	58.5	21,941	July	17,278	19,070	51.0	17,305
Feb.	15,291	18,670	55.4	20,848	Aug.	19,049	17,890	41.7	15,881
Mar.	17,069	20,680	57.9	19,558	Sept.	18,693	17,795	44.6	17,991
Apr.	15,393	19,280	58.8	19,283	Oct.	17,182	18,420	45.1	17,026
May	18,945	20,215	54.1	18,137	Nov.	18,245	18,380	49.1	22,399
June	18,781	18,140	48.2	18,709	Dec.	17,728	14,320	45.9	24,785
1929:									
Jan.	18,685	21,068	49.1	24,394	July	18,387	20,236	48.7	19,679
Feb.	18,094	19,829	47.7	23,305	Aug.	19,787	18,230	47.6	22,309
Mar.	19,984	20,867	46.7	22,076	Sept.	18,660	17,071	49.2	24,984
Apr.	19,899	22,435	47.3	20,680	Oct.				
May	20,385	23,176	47.1	19,479	Nov.				
June	18,416	18,141	42.0	17,980	Dec.				

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927 and 9,577 tons in 1928.

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